

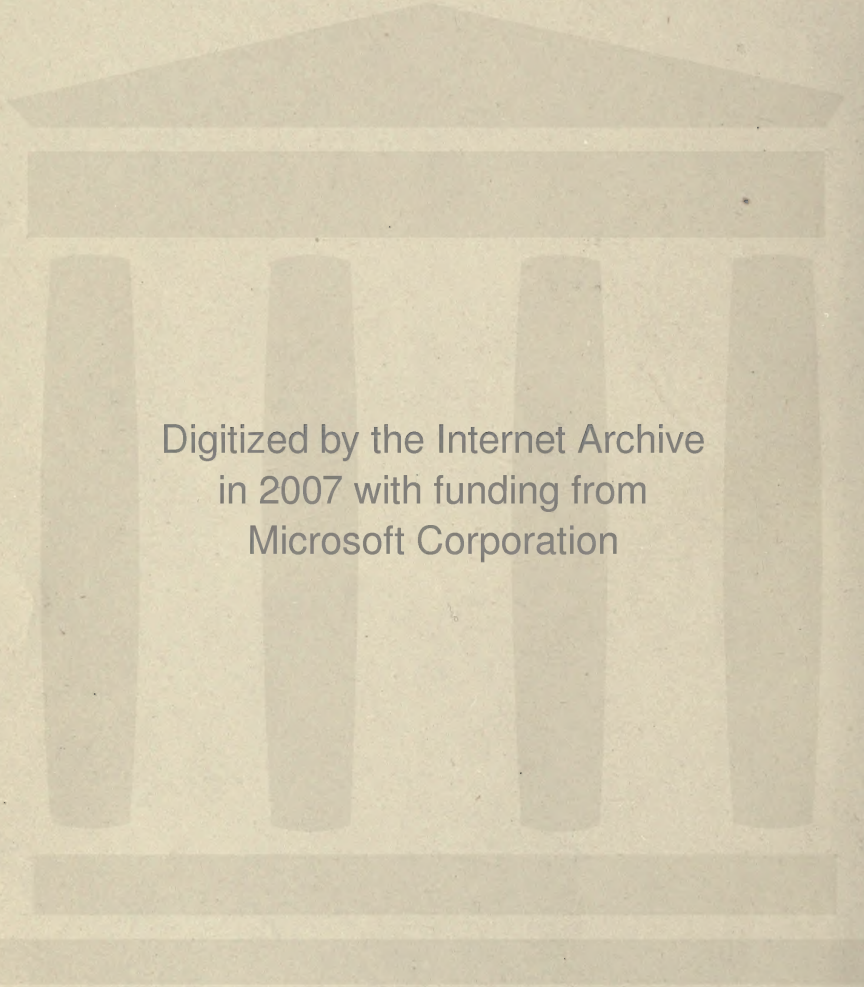
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THE
CANADIAN HORTICULTURIST

PUBLISHED BY THE

FRUIT GROWERS' ASSOCIATION OF ONTARIO

VOLUME XXIII 224



EDITOR, . . . LINUS WOOLVERTON, M. A.

OFFICE AT GRIMSBY

1900 2 1901



570438
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Junior	150, 168	Shutt, Prof. F.	40, 208, 255, 257
Keep, N.	515	Stevenson, E. B.	352
Kerr, W. J.	445	Stewart, D. J.	540
Lewis, T. H.	490	Thistle Burr	212
Lochhead, Prof. W.	47, 95, 133, 193, 218, 256, 257, 458.	Underwood, A. B.	239
McAinsh, J. M.	169	VanDeman, Prof. H. E.	238
McDonald, D. S.	490	Warnock, W.	169
Macoun, Prof. W. T.	9, 101, 142, 173, 231, 265, 451, 508.	Wellington, W. E.	300
Manning, W. H.	12, 50, 81, 91, 150	Woolverton, C. E.	180
		Woolverton, L.	15, 16, 20, 25, 28, 36, 45, 74, 82, 87, 125, 126, 131, 144, 164, etc.







FIG. 1717. GARDEN AT "GLEN LYNN," TORONTO, AFTER A SNOW STORM.

THE CANADIAN HORTICULTURIST



** JANUARY **

BRIGHT GARDENS BENEATH BLEAK SKIES.

GROUNDS cheerful and attractive amidst frost and snow, are desirable more especially for farmers and for the large class of city folk, who are away from home in summer. Farmers have too much work in spring and summer to allow them to take much interest on the garden; but the crops in, and the fall work done, they have more leisure to enjoy pleasant surroundings. The fashion of city people, of taking a long holiday in the warm weather, has been very detrimental to their grounds. Householders, especially those who have the most money to spend on their surroundings, are away the whole season, or else long enough to make it seem not worth while to devote much time, thought, or money to the garden. Why, in winter, when they are otherwise shut off pretty well from the beauties of nature, should they not have at their very doors landscape pictures surpassing wild scenery? We should try to have things about us at their best when we can most enjoy them. It was this principle that in England did much to make the bedding-out system, with all its faults, a sensible practice. The Easter sun throws its beams, let us fancy, across the terraces of some storied manor-house, and plays

over rich harmonies of color. Warm masses of tulips, daffodils and pansies, light up the beds so lately bleak and bare. And why? The family which has been away for the winter is at home, and have many guests. The holidays over, the house is deserted and the garden languishes till autumn, when it is again dressed with bright flowers to greet more visitors. The best effects were thus secured there at proper times; and with us there is no need that our grounds should be gaunt and bare in winter, while we have at our disposal a great wealth of evergreens boasting rich hues of green, gold and brown, silver and blue, and trees decked with clustering berries of scarlet, white, purple and orange. The poor man can make a nice garden from what he can find in the woods, whilst his better-off neighbor can get all sorts of beautiful things from nurseries.

We would have the garden attractive both in bleak days of late fall and in the winter's snows.

These cold-weather or winter gardens, as we might call them, are not so desirable for residents of our smaller towns and villages, who, as a rule, are at home in summer time to enjoy their grounds. Still, even they might have a

small part of their grounds set aside for winter effects.

We are not advocating an original idea, but one that has been from time to time urged in horticultural journals. Forty-eight years ago there appeared in Downing's *Horticulturist* a description of a garden planned for winter beauty, in which "there was not a leafless tree in sight."

screened. The background of the picture, the plantation bounding the view, will be composed of rich masses of green of varied shades, warmed here and there with a glow of scarlet, and, like the stained panes of some cathedral, intersected at intervals by gleaming shafts of white.

For our greenery, nothing, it seems to us, can for the main planting surpass the hemlocks



FIG. 1718. EVERGREENS AT "HOLLYDENE," TORONTO, DEC., 1899.

Some persons would rather arrange their grounds so as to make pictures attractive from the windows of the house, whilst others would design them with an eye to the effect from the walk, from the street or road to the door, or with a view to display to the passersby. If a nice, bright outlook is desired, select the window from which you wish to have your view. Other things being equal, take a window commanding the bleakest part of the lawn, or objects that are eyesores and should be

with their light and graceful foliage. A Scotch pine or two or a Norway spruce or other low priced hardy conifer should be disposed here and there to break the monotony of color. The hemlocks are rather more difficult than most evergreens to transplant, and especial pains should be taken to protect their roots from sun and wind till they are well and carefully set in the ground.

For the glimmer of scarlet to light up and cheer the scene there is the bitter-sweet (*Cela-*

trus scandens), the most useful climber for winter effects. This has clusters of orange seed pods which, as they mature, break open and disclose the scarlet fruit. The segments of the pods do not fall off but curl back so that the berry clusters present two pleasing colors side by side. It will make a growth of ten or twelve feet in a single season and takes forcible possession of any young sapling that comes

ogues, but Messrs. Ellwanger & Barry offer it for sale at thirty-five cents a plant. It bears its staminate flowers on one vine and pistillate on another, so that to obtain a full crop of berries care should be taken to procure stock by division of plants. There is a Japanese variety with smaller berries much more scattered along the branches but still quite abundant. It grows well over rough places and makes an admir-



FIG. 1719. SUMACS AT "BENVENUTO," TORONTO, DEC., 1899.

within its reach. A few trees here and there should be given up to its tender mercies to form trellises as it were, over which it may hang its gay colored festoons. It grows wild pretty generally throughout Ontario, twining over bushes on river banks and in thickets. In the country the easiest way to get it would be to take it from the woods. In the city it would be less trouble to procure it from the specimens not uncommon under cultivation there. Our nurserymen do not mention it in their catal-

able mantle for a wall or rockery. It could probably be obtained from some of the leading nurseries of the Eastern States. However the native plant is easy to get and thoroughly satisfactory.

The third element of our background, the interesting shafts of white, will be supplied by the stems of the graceful birch. How well the birch contrasts with dark masses of evergreens in the wood! Why should we do without it in the garden? The white birches should stand

at the front of the boundary belt. So much for the background of our picture. The foreground will be left pretty open that the view may not be obscured, and the house may not be smothered as it were and rendered unhealthy by having too close a wall of trees around it. The middle ground and side borders admit of very varied treatment. There will be ranged trees and shrubs with bright colored bark or persistent berries and some choice evergreens. The precise arrangement of these must be left to the taste of the person planning the ground, but we will mention some of the materials that may be used.

Some willows we would choose for the color of their bark. The golden willow (*Salix vitellina Aurantiaca*) would be one of the best, and is not hard to obtain. *Salix vitellina*, a Russian variety, with yellow bark, and *S. Vitellina Britzensis*, and *S. Palmaefolia* with red stems, are other varieties obtainable from American nurseries at a cost of about half a dollar. Willows are fast growers and so are good for early effects. The red bark of the dogwoods looks well too against a snowy background. The Siberian (*C. Siberica*) is the best, having a more brilliant stem than *Cornus alba* or any other variety. Much brighter colors can be obtained from the dogwoods if the old stems are cut down level with the ground every spring. The suckers which will spring up will be of much fresher tints than older stems. Treated in this way the native dogwoods which can easily be got from swamps or the banks of streams will be fairly satisfactory. Clumps made up of willows alone or entirely of dogwoods, or groups in which both grow together, will all look well.

The native striped maple (*Acer Pennsylvanicum*), a small tree, 10 to 20 feet high, has an attractive trunk in winter, and the *Kerria*, sometimes misnamed the yellow rose, has a green stem though perhaps too slender to make much show. There is a dwarf variety, *Kerria ramulifolia aurea*, in the market with a stem striped with yellow and green. There are basswoods too with colored bark.

The forms of some deciduous trees are very picturesque in winter, and although it would take too long to grow them for our winter gardens, yet if they are already on the property it would be a pity to remove an oak or an elm or a beech to make way for evergreens. After the birch the beech is one of the most satisfactory of our larger trees for winter effects. The weeping variety with its great, tortuous spreading branches, is curious and interesting. The light colored bark of the beech takes away the sense of bareness that most other deciduous trees are apt to inspire, and makes it preferable to the dark trunked elm with all its symmetry or the gaunt form of the oak, despite its majesty.

The garden will have more interest if some trees and shrubs, with bright colored berries, are given a place. Of these, for city gardens, nothing can surpass Thunberg's barberry for planting in masses. It bears very profusely short clusters of bright scarlet berries, which, as they are less watery than the common barberry, do not shrivel or lose color so much, and indeed will remain full and fresh till spring. Its foliage is lovely in autumn, and in winter in contrast with snow or evergreens it is very pleasing. It is very hardy, and may be easily raised from seed. The fruit of *Berberis Amurensis* fall too early to make it desirable; but there are other good barberries, the common European variety, the Japanese, *Sieboldii* and the variety *Canadensis*. Unfortunately as it is a host plant for wheat-rust fungus, the barberry is not desirable for the farm-home grounds. At the Model Farm, Guelph, some fine barberry hedges had to be destroyed to prevent loss.

Other trees, with red fruits that remain for part or the whole of winter, are the Rowans, both the American, with orange berries, and the European, with smaller red fruit; the Thorns, of which the best are *Crataegus Crus-galli*, with showy berries, lasting all winter, and *C. Cordata*, the Washington thorn; the high-bush cranberry; the cotoneasters; some of the roses and the alders. The different kinds of *Euonymus* are most desirable for the late fall, and cannot be too warmly commended. A pretty group can

be made by placing the *Euonymus*, with its scarlet berries, and the witch-hazel, with its twinkling yellow stars, side by side in front of hemlock or Colorado blue spruce trees.

The best shrub with white berries is the Snowberry, which if grown in partial shade out of the full rays of the autumn sun will keep its berries fresh a long time. For black fruit the common Privet is the best. Groups of the

should be remembered that some evergreens, such as the *Arbor vitae*, that are attractive in summer are dull and uninviting in winter, whilst others, such as the *Retinosporas* seem to warm as the weather grows colder. Many too of the choicer evergreens are rather tender, and the planter would do well to write to the Director of Experimental Farms, Ottawa, for the catalogue (which is furnished free), of trees and



FIG. 1720. EVERGREENS AND BARBERRIES AT "HILLCREST," TORONTO, DEC., 1899.

Sumac with the crimson tufts look well after the snow falls. Fig. 1719 shows a group of these at the gateway of "*Benvenuto*," the residence of the President of the Toronto Street Railway. Glittering masses of the *Mahonia* with its glossy holly like leaves should be disposed here and there. The leaves are attractive all winter, and in spring are succeeded by pretty little clusters of yellow flowers.

In the choice of conifers, some of which should have a place in the middle ground, it

shrubs found hardy there. Nor should the garden maker forget that many long-lived evergreens are apt to early become unsightly. They become rusty or their lower limbs die. Mr. Parsons in his recent book, "*How to plan the Home Grounds*," mentions as being most free from this fault the white and Swiss pines, the dwarf *Mugho* pine, the red cedar and the Oriental spruce.

For a conspicuous position perhaps there is no choicer tree than a good specimen of the

Colorado blue spruce (*Abies pungens*). Hardy enough to endure a temperature 30° below zero without injury, it also puts up with the dust and smoke of cities better than other conifers. In ordering from dealers, a nice sage specimen should be asked for as only about one in thirty in the nursery now exhibits a striking shade. It has a pleasing hue, as if covered with bluish hoar frost. It must be given good cultivation or it turns green. The first year after transplanting it generally loses lustre, but it gradually recovers. There are many other choice evergreens which we have not space to treat of. *Thuja occidentalis*, Peabody and lutea, with their golden and chocolate brown winter robes, are the most brilliant in the large collection in Queen's Park, Toronto. For carpeting the ground beneath evergreens the Periwinkle is useful, and is easily grown.

The plan of the garden will be somewhat different from that we have indicated if the best effects are desired from the road or street outside the grounds, or from the drive or walk leading to the house. If the idea is to have

the property look well from the road, the grounds should have some low hedge bordering on the street, the centre of the grounds should be left open, and most of the trees and shrubs should be ranged along the side lines. Choice trees and shrubs would be planted at projecting points in the waving outline of the border masses. For the low hedge the American *Arbor Vitae* would be good, or if a choice, though more expensive one is desired, one of Thunberg's barberry, or of the Colorado blue spruce, will be highly ornamental.

Should the planter desire privacy, and to have the grounds look best from the approach to the house, he should plant some tall hedge, such as hemlock or Norway spruce, along the street, or if he can get plenty of rough stones he might build a picturesque wall and cover it with creepers. The walk to the front door of the dwelling might be bordered by a pretty hedge, and the plantation arranged with large trees in the back-ground and smaller ones in the middle space of the prospect as one approached the house.

Toronto.

A. E. MICKLE.



NOTE.—Buttercups were still flowering in Toronto on 1st of December, and a pink water lily was still blooming on 3rd of December, and even at beginning of same month some thirty carnations were in bloom in a garden.

CENTRAL EXPERIMENTAL FARM NOTES—No. 4.

WINTER has come since the last Farm Notes were written, and the lawn and fields are again covered with snow, though the weather has not yet been severe. There was an exceptionally open autumn this year, and winter not set in until December 4th, thus giving ample opportunity for doing work which in an ordinary season would have been left undone until spring. During this month the annual measurements are taken of the timber tree growing in

covering the ground that the evergreens become prominent features of the landscape at the Experimental farm; and there are now so many fine specimens to be seen there that a few notes on some of the most striking may not seem amiss. During the past eleven years no less than 346 species and varieties of conifers have been tested there, and the greater part of these are still alive. In the Arboretum these are arranged in groups by themselves, but on the ornamental grounds they are scattered among



FIG. 1721. GROUP OF EVERGREENS, IN ARBORETUM AT CENTRAL EXPERIMENTAL FARM.

the forest belts, the terminal growth and increase in diameter being recorded. The data which have been accumulated during the past few years are now becoming very interesting, and each year's records add to their value. This is the month also for preparing material for the annual report by compiling the notes made during the past season and making the necessary calculations for the tables which appear in it. There are many other matters also which winter gives the opportunity of attending to.

It is at this season of the year when deciduous trees have lost their leaves and the snow is

the deciduous trees or occupy but small clumps. In the forest belts are good size blocks of White, Scotch and Austrian pines, White and Norway spruce, and American *Arbor vitæ*, and these are becoming more conspicuous every year as they reach a greater height. It is in the Arboretum and on the ornamental grounds, however, where the trees are given more space to grow in, that the finest specimens are to be found, and where the graceful or stately habit of a tree may be developed at will.

RETINOSPORAS.

The Japanese *Retinosporas* are very little known in Canada, yet these graceful trees suc-

ceed admirably if given proper attention. They belong to the genus *Cupressus*, and are closely related to the Lawson's Cypress of California and Oregon. All the varieties offered for sale are forms of two species, *Cupressus obtusa* and *Cupressus pisifera*, yet in some of the varieties there is no resemblance to the species whatever, and it is only when a variety "sports" that the true parent is revealed. A few notes may help to distinguish these species and varieties.

thread-like pendulous branchlets. It is quite hardy and thrives well (Fig. 1721).

C. pisifera squarrosa—This is the least valuable of all the varieties of *C. pisifera* at Ottawa, as it is not perfectly hardy. Every winter it is more or less injured by sunscald, and on this account it is seldom that a symmetrical specimen is found. It is of much more dwarf and compact habit than the others, with short leaves of a pale silvery colour.



FIG. 1721. *CUPRESSUS PISIFERA FILIFERA*, IN ARBORETUM AT CENTRAL EXPERIMENTAL FARM.

Cupressus pisifera (*Retinospora pisifera*)—All the *Retinosporas* are ornamental, and this and its varieties form a very beautiful and varied collection. It becomes a good sized tree in Japan, but like its varieties it is more shrub-like in its growth at Ottawa. It is of pendulous form with bright green leaves and very graceful habit.

C. pisifera filifera—A very distinct and graceful variety with drooping branches and slender

C. obtusa—This is a native of the mountainous districts of Southern Japan, and attains there a height of from 60 to 100 feet. It is a pretty tree, but the specimens at the Experimental Farm have not developed enough yet to determine whether it will make a symmetrical tree here or not. The bright green of the upper surface of the leaves makes a fine contrast with the glaucous shades underneath.

C. obtusa aurea and *C. obtusa gracilis aurea*

are two of the most beautiful golden leaved trees yet tested. The yellow is of such a rich shade and the trees are so graceful that they make very striking objects on a lawn.

C. obtusa lycopodioides — So unlike the species that their relationship could hardly be credited at a casual glance. This is a compact,



FIG. 1722. *CUPRESSUS PISIFERA PLUMOSA*,
IN ARBORETUM AT CENTRAL EXPERIMENTAL FARM.

stiff branched variety with peculiar blunt dark green leaves. It is more curious than ornamental.

C. ericoides—Heath-like *Retinospora*. It is unknown whether this is a variety of the Japanese *Retinosporas* or a variety of the White Cedar (*Cupressus thyoides*) of the Eastern States. It is a pretty dwarf, compact shrub, only attaining a height of about 2 feet, with fine, soft, delicate green foliage, which becomes an attractive purplish tinge in autumn.

All the species and varieties of *Retinosporas* previously mentioned may be called hardy at Ottawa, with the exception of *C. pisifera squarrosa*. Some of the others are occasionally sunscalded on the Southern side, and when planted this should be taken into consideration and a place given them where they will be protected to a certain extent from wind and sun in late winter and early spring. The *Retinosporas* are comparatively slow growing trees, the tallest planted in 1889 being only about eight feet in height. The choices of the group are *C. pisifera filifera*, *C. pisifera plumosa*, *C. obtusa aurea*, and *C. pisifera plumosa aurea*. They are very desirable, and it is surprising that more of them are not planted.

W. T. MACCOUN,

Horticulturist, Central Experimental Farm.

THE HYACINTH BEAN.

AS an ornamental climber the Hyacinth Bean, *Dolichos lablab*, is worthy of consideration. The plants start readily, grow vigorously, make a fine display of foliage, and bear abundantly large, bean-like clusters of showy lilac and white flowers. These are followed by purple-colored pods which enclose the seeds, various forms of which are shown in the little sketch. *A* represents a seed of *Dolichos giganteus*, a giant-flowered sort with large, black beans showing a white ridge; *b* shows the purple and *c* the white *Dolichos*; and *d* represents the brown seed of *D. bicontortus*, the pods of which are curved like a ram's horn. All of



FIG. 1805.

these are useful where vines for shade and bloom are desired. *D. lablab* is also known as Egyptian Bean, having been introduced from Egypt in 1818. It may be treated as a hardy annual, the seeds being planted early in spring. Give them string support as soon as they show a disposition to run. The plants will run from fifteen to twenty feet high during the season.—*Parks' Floral Guide*.



FIG. 1723. ART AND NATURE BEAUTIFULLY COMBINED AT PATERSON, N. Y.

LANDSCAPE GARDENING—I.

LANDSCAPE Gardening, Landscape Architecture, or Landscape Engineering, are terms which are employed to represent a profession concerning which very little is understood by the majority of people.

Many have the impression that the landscape gardener's work only begins when the house is completed,—that it consists merely of grading, sodding, seeding, and planting. As a result of this popular ignorance there are many nurserymen, florists, and contractors who make this kind of work a part of their business announcements using one of the above titles, usually that of Landscape Gardener. This branch of the plant dealer's business gives an opportunity to use plants that may not at the time be in demand and of which they may have a surplus. It is in general their practice to give about the same treatment to all places, irrespective of characters or surroundings; to remove all natural rocks or bushes, grade to a smooth

surface, sod or seed, and then plant throughout the open spaces and along the walls and borders the common, usually exotic, plants, with an assortment of the horticultural forms that happen at the time to be in fashion and are easily and cheaply procured in the nurseries. Their attempts to go beyond the ordinary practice too often result in such offences to good taste as a rockery in the centre of a fine bit of lawn, which, as usually made, is and always must be a bare and ugly pile of rocks; or a discarded iron kettle in which nothing creditable can be grown, placed in a rustic tripod and the whole arrangement painted bright red; or useless walks and roads with unmeaning and unnecessary crooks.

There is an impression abroad—with many, a conviction—that there is a higher practice as a profession, by which finer and more original and artistic results are secured, but with this impression is the feeling that this practice is only within the reach of

cities or wealthy individuals, and is so far beyond the means of small property owners that it is not worth their time to look into it. This is a wrong impression, for even the smallest place is worthy the attention of the landscape architect, and there is as much reason for securing his services in the selection, arrangement, and construction of the grounds as there is in the employment of an architect for the buildings. A properly equipped landscape architect would be able to secure a much better result in every way, for the same expenditure of money that is required to lay out and complete the first planting of the place in an ordinary way. This higher practice of the profession should usually begin with the selection of the property on which a home is to be established, for the landscape architect in consultation with his client can often detect advantages and disadvantages that would be entirely overlooked by the ordinary observer, and, knowing the tastes and requirements of his client, can determine the amount of land necessary to carry out these requirements properly and thus often save a heavy expense in the purchase of additional land, found to be necessary after the first purchases are made, at a much increased cost over that first secured. The pieces of land in most towns with the greatest possibilities for the making of an original, interesting, and often unique place are very likely the ones longest neglected and least sought for, because their picturesque natural features or irregular surfaces will not lend themselves readily to the smoothing-out process which most land undergoes, or to square lots as laid out by the real estate agent with the assistance of the land surveyor.

I have in mind an old worked out limestone quarry, in a dense wood, which is overgrown with ferns, vines, and bushes, and near it a summit commanding a fine view, with an open field sloping away from it. In another place a ridge of great angu-

lar fragments of rocks, which is shaded and carpeted by pines; near by, a pleasant slope, at the base of which is one of the finest white oaks I know. At another place a beautiful undulating surface, with splendid white oaks and chestnuts, and at one side a bit of meadow with a pool, surrounded by masses of barberry, blueberry, azalea, rhodora, and all the pretty plants and flowers that go with them. Another place there is a beautiful tree-fringed meadow,—a perfect little park in itself. All these are within less than a mile of railroad stations and with low valuations.

We may hope to see the time when such lots will be fully appreciated and such trees preserved,—not destroyed, as I know one splendid elm to have been, because to go around it a slight curve in a walk to the front door of a cheap house would be necessary.

In the selection of land, healthfulness should be one of the first considerations. It should be well drained—preferably a porous, sandy, or gravelly soil. This applies particularly to the land where the house is to stand, for nothing can be more unhealthful and disagreeable than a damp cellar, and when the condition is such that it becomes necessary to moor a raft to the cellar stairs to be used on occasions when one has to go fishing for coal and potatoes, it is not only unhealthful, but ruinous to one's disposition. Good sanitary conditions in the neighborhood are as important as good drainage. If it is thickly settled, the ground may be saturated from leaking cess-pools. Rubbish heaps, barn-yards, sink-drains, and vaults should be investigated and the purity of the water supply should be looked into. A pleasing outlook from the grounds is a very desirable feature; if not a landscape it may be a fine tree or a tree-arched street, or a bit of your neighbor's well-kept grounds. The topography of the land is also to be considered. A steep slope toward or away

from the road is expensive and difficult to build upon, but often very sightly and cool in summer and warm in winter, if on the right side of the hill. A gentle slope toward the road gives good surface drainage and an easy approach. A gentle slope away from the road is not bad, and if properly managed, a pleasing result may be secured with a house set below the road level. The most satisfactory result can often be obtained on an irregular piece of land, and very often the irregularities can be so utilized as to make construction more economical than on

a flat piece. Ledges and boulders often form very interesting and valuable incidents, giving the place an individuality which it would otherwise be difficult or impossible to secure. Masses of native trees and bushes, or individuals of either; an ancient and picturesque fruit tree; a vine-covered surface, are often of the greatest value and can be utilized to give results that could not be secured in years by artificial planting.

WARREN H. MANNING.

Brookline, Mass.

(To be Continued.)



ORCHIDS AT CHRYSANTHEMUM SHOW, TORONTO.

Photo by E. E. King

THE FLORISTS' EXHIBITION.

THE tenth annual floral exhibit by the Toronto Gardeners' and Florists' Association was in no way behind previous displays. A writer in the *Toronto Mail* says of it :

The chrysanthemum is still held a hot favorite by the flower-loving public, and deservedly so.

The indifferent spectator might be excused for not going into estacies over the ordinary plant with the ragged head and one eye. as first introduced to the civilized world, but the person who fails to see real beauty in the great compact blooms of white, pink, or yellow, such as are shown in profusion at the Pavilion, misses a rare pleasure. The "craze" in this variety of flower just now is to

force one magnificent bloom as large, round, and perfect in every way as possible. The big plants with five or six dozen blossoms are being relegated to the background, and comparatively few are on exhibition. The bloom with the long tangled petals growing in apparent abandon—a native of Japan—is still very much in demand, and comes in for a lot of admiration. The Chinese variety, however, with the petals turned in, making a quilted effect, and growing very large, round, and compact, is considered by many to be nicer, but of course it is purely a matter of taste.

Miller & Sons, the well-known Bracondale florists, are showing cut blooms, one of which deserves special note. It is named the "Timothy Eaton," is pure white, almost as round as a ball, and measures 21 by 23 inches. Mr. Miller is justly proud of this bloom which he claims is a world's record for size, and \$1,000 would not tempt him to part with the stock.

To many the most attractive exhibits are the groups of foliage plants, including chrysanthemums, palms, ferns and orchids. There are a number of these, each limited to 90 square feet, and a lot of ingenuity is manifest in the attractive manner in which they are displayed. The city's

exhibit occupies a central position on the stage, and possibly comes in for more encomiums than the others. It includes some very rare species, which it is questionable if they could be duplicated on this continent. The chrysanthemum may be queen, but the orchid is certainly the king of the floral world. A very fine specimen of the "Cattleya Dowiana" has a rich purple bloom with bold stripings. Some splendid specimens of the celebrated pitcher plants, which prove so useful to thirsty travellers in the tropical countries, are also to be seen.

While the show was opened yesterday, the cut-flowers, such as roses, carnations, violets, and the design work, are to be seen for the first time today.

The arrangements for the public are very convenient. There is plenty of room to move about down stairs, while in the gallery there are seats where one may rest and listen to the sweet strains of the orchestra.

Hon. G. W. Ross was present in the afternoon to formally open the show, but the arrangements had not been quite completed, and as the Premier was unable to wait the ceremonies were postponed.

THE BITTER ROT OF THE APPLE.

WE ARE amazed at the multiplying difficulties which beset the devoted fruit grower. As if it were not enough to spray for codling moth, apple scab and grape mildew, we are now having added a most destructive fungus, the bitter rot of the apple, which develops from spores floating in the atmosphere, lodging on the skin and there taking root. The thread-like mycelium works its way through the cellular tissue of the apple, destroying its texture, causing brown spots in the flesh which show even through the skin. An apple affected with this spot may appear fairly well, but if pared or cut these spots under the skin will be found to extend far toward the core, and if numerous, they will entirely unfit the apple for any use whatever.

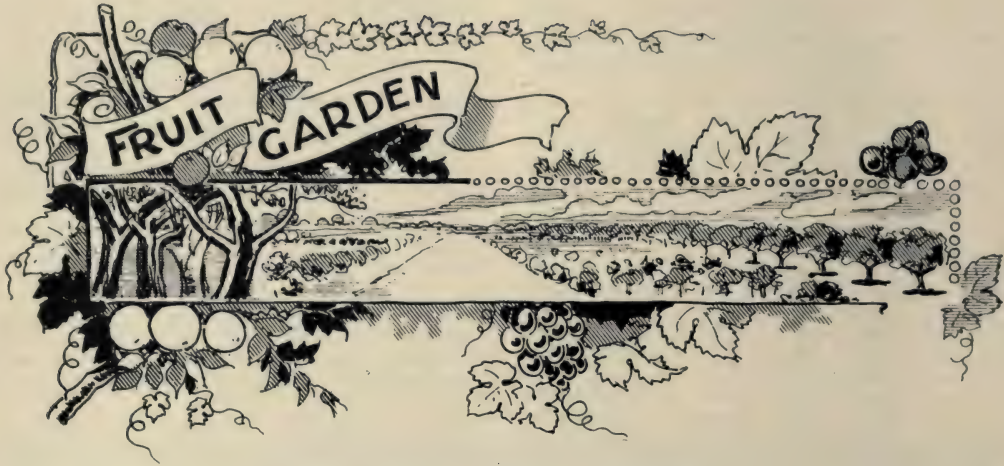
At Maplehurst we first noticed this evil on Baldwins grown on the bank of Lake Ontario. It was several years ago that we observed it first on a few trees, but it has

gradually extended from one orchard to another and threatens to become a most serious evil.

The remedy recommended is the now well known Bordeaux mixture, which is so dirty a mixture to handle that many persons will not apply it. Fortunately for such gentlemen, the spramotor people have invented a protection just under the nozzle at the top of the pole, by the use of which all leaking bordeaux is shed off, leaving the pole always perfectly dry and clean for handling, without gloves.

The first application must be made soon after the buds begin to swell in the spring; the second, when the fruit is about the size of marbles, and the third when nearly grown.

THE O. A. C. REVIEW is now published in magazine form, and is a very creditable college magazine.



THE CITY FRUIT GARDEN.

I COME before you as the representative of the Ontario Fruit Growers' Association, or, as it should be called, the Ontario Horticultural Society, for we have long ago ceased to confine our attention to the orchards and fruit gardens of Pomona, and have been led out into the domains of beautiful Flora, and even farther, into the sylvan glades of Faunus.

We welcome you as an affiliated society, and congratulate you upon accepting the broad and liberal policy of the Agricultural and Arts Act in its widest interpretation, and upon your agreeing with us that it is better to so utilize the munificence of the Department of Agriculture as to give the greatest good to the largest number, instead of making large gifts to a few prize winners.

Three years ago, four of our directors proposed the encouragement of affiliated horticultural societies, believing that our whole work would thereby be strengthened, and all persons directly benefited. The plan has been received with universal favor. The Minister of Agriculture views it with favor, our Association is ready to help each

local society in every possible way, and the societies themselves are ready to co-operate with us to make our journal a greater success, and of wider scope.

You have an important work to accomplish. It is not the education and encouragement of a few specialists by giving them large money prizes, but the diffusion among the masses of a taste for the ornate as well as the useful in horticulture. I come myself to speak more especially upon the latter, having spent all my life, since my college days, in the study and practice of fruit culture, and withal feeling I am but an amateur.

THE GARDEN AND LAWN.—What pleasant associations are suggested by the words! Do not the words remind you of some delightful retreats away from the crowd, away from the burning sun; a place of rest and refreshment, especially for those men and women whose time is spent in the office, behind the counter or in the workshop; for here the birds sing, the air is pure and the flowers give forth their fragrance. Those dread enemies of humanity, blasting fever and wasting consumption, take their flight from those homes whose

inmates live much in the pure air of heaven, and make free use of the luscious fruits of the garden.

I take it that I am addressing amateurs, and I do not even dare to call myself a professional. Amateurs you must be to succeed. I mean you must be lovers of the garden to succeed with it. Do you remember what Ruskin says in "Queen's Gardens?" "You have heard it said (and I believe there is more than fancy in that saying, but let it pass for a fanciful one) that flowers only flourish rightly in the garden of some one who loves them." He is applying this truth to humanity, neglected about us, but I take it in its literal application. I apply it to the fruit or the flower, or the house plant. Unless you love it and so nourish it, you cannot attain the best success.

Another secret of making your garden and lawn a thing of pleasure and delight is that it should be your very own. I do not mean simply by ownership, but the evidence of your own labor, with your own hands. The gardener may do better work, but it is not so much yours unless you do it all, or at least a part yourself. You will be more interested thereby, and it will be more to you. You may despise the labor, but that will be the very secret of your highest enjoyment.

But enough on general lines. Now I will try to give you some hints for the fruit garden, and name some things which may be suitably planted in it.

First, its site is too often chosen without regard to the lawn. I would favor it being made an extension of the lawn; not fenced in by high boards, but only screened from the front by an ornamental hedge, and most easy of access for the family and visitors. Unless it can be a place of beauty, worthy of the presence of visitors, it had better not exist.

The object of it is twofold: First, the

joy in the very garden itself, in watching and directing the growth of the trees, and in eating the first ripe fruit from each tree, and studying the relative value of each; and second, the advantage of its products upon the table. No such fresh, delicious fruits can be purchased in the markets as can be brought in direct from the garden, just gathered when at its very best. What more inviting table ornament in the autumn than a plate of assorted red, white and black grapes. They look almost too good to eat, and remind me of the Irishman who in his country never saw fruit on the table, except for ornament, and when he saw a Canadian taking off a whole bunch of grapes, cried out, "Oh moi, he's aitin the bokay."

Apples I would no longer plant in a city garden. They take too much valuable space, and the best are so cheap in our markets. If I had apples in a garden of limited space I would have the trees dug out, root and branch, and used for firewood. It is even a question now-a-days whether it pays to grow apples in the field for export, and, unless the present efforts of the Department of Agriculture in opening up new markets are successful, there is surely little, if any, money in growing apples; I might also say in fruit growing of any kind.

Pears are more desirable, for the best table varieties cannot always be purchased in our markets, varieties, for example, such as Doyenne d'Ete, Giffard, Rostiezer, Petite Marguerite, Louise, Clairgeau, Sheldon and Anjou. The Bartlett you can always buy, for growers plant immense orchards of it, and last year you could buy that variety for 25 cents a basket. So you need not plant it, nor the Duchess, a good pear, but constantly on sale. Pears for a small garden should be grown on quince stock, which makes them dwarf, and occupy but little room. These you can plant about twelve feet apart each way. To get the

best results, careful training will be necessary. From the very first aim to produce a pyramidal shape by encouraging one upright leader, and cutting back the side branches to a line drawn from the apex of the tree to the ground at about an angle of 45 degrees. Every year the new growth needs to be cut back one half to two thirds, and thus fruit spurs will be encouraged instead of long barren stems.

No part of your fruit garden will be of more interest to you than this dwarf pear plot, for it will be both beautiful and useful. When I speak of dwarf pears, I think of one of the first presidents of our Association, an enthusiastic cultivator of dwarf pears, at that time a citizen of your town, who had nearly every variety of pear in cultivation, and became quite an authority on varieties, though only possessing a small garden. I refer to the late Rev. R. Burnet. No doubt some of you remember him, and possibly you even know of his garden, in which no doubt his pear trees still survive him.

And now I want to refer to a fruit which every citizen may cultivate, for it will climb a fence or an alley wall. I mean the grape, one of the most wholesome of fruits, and the vine is so cheap and will so early yield fruit, that even the tenant may well plant it in his back garden. A vine each of the following would give a succession of delicious grapes for the table from September 1st, until Christmas, or even longer. I name them in the order of ripening: Moore's Early, Lady, Lindley, Wilder, Delaware, Diamond, Salem and Vergennes. The last two varieties might be kept well into the winter for table use. There is no secret about keeping them in good condition, except a moderately low temperature and in moderately humid air, or wrapped in oiled paper. If the cellar is warm and dry they will shrivel up.

The vines may be trained to climb a wall

and left without pruning, but it is far better to shorten back the new growth every year, except of course the main leaders to cover the wall. If trained on the wire trellis, the neatest method is to run two arms on the lowest wire and train uprights from these to the two upper wires. Another simple method, known as the Kniffen System, is to run out two or four arms on the higher wires and let the young wood hang down. This latter is called the "lazy man's method," but anyway it is a very good plan where it is not necessary to lay down the wood in winter.

The cherry is well adapted to the city fruit garden. The tree is ornamental in habit and in bloom, and the fruit both attractive and marketable. The fruit cannot always be purchased in the market at its best; like the peach and plum it is most luscious when gathered from the tree at the nick of time when it is just at its best. The market gardener picks his cherries on the green side, and they do not improve after gathering, so you seldom get them at their best from the green grocer. The cherry must have sandy soil for the best success, but whatever soil, it must be dry. If not too close in texture, it will not need much cultivation, so you can plant the cherry along the border, if you choose, but, if the ground is hard, you must either dig about the trees or mulch them well. For a succession I would plant Governor Wood, Black Tartarian, Napoleon, Early Richmond, May Duke, Montmorency, Elkhorn, Windsor and English Morello. The cherry does not need much pruning. Indeed, if you cut it very much, you will injure its vitality. There is no fruit more profitable, and a small garden planted with cherries will give you good returns.

Of small fruits I cannot encourage the growth in the home garden to any great extent. Blackberries and raspberries are too full of prickles and too unsightly to add to

the attractiveness of the home surroundings, and had better be banished even from the back yards; the fruit is cheap and can be purchased at less than you can grow it. The only fruit of the kind I would grow would be strawberries. These you want fresh from your own vines to have them at their best, and you cannot always depend upon your

fruiterer for them. They will repay the highest cultivation and give wonderful yields of fruit. Try Clyde, Bubach, Saunders and Haverland, or some of the other highly recommended varieties, and see how well you will be repaid.

L. WOOLVERTON,
Before Hamilton Horticultural Society.

NOTES ON SMALL FRUIT CULTURE.

GOOSEBERRIES.

I have tried a number of sorts the past few years with following results:

INDUSTRY.—This variety with me has been a complete failure. It is a very poor grower and not productive enough to be worth growing.

DOWNING.—Has been our main market variety. It is a good grower, fair size and very productive with me. It has never mildewed although I have tested over 20 years.

WHITESMITH.—Very large and very productive, but some seasons it has mildewed so badly it was useless. The past season it was perfectly free from mildew.

PEARL.—I received the plants from Fruit Growers' Association, a small plant by mail. They have grown very rapid and borne heavy crops, some bushes yielding 12 quarts each. I have about 50 of them. They have shown no sign of mildew so far. Fruit fair size, somewhat larger than Downing and a much better flavor. The bushes are more open and much better to pick. I am digging out the Downing and replacing them with Pearl.

Two years ago I planted some of the Columbia and Chautauqua gooseberries. Both those varieties have borne heavy crops of very large fruit and good quality, no mildew, but they have made a very slow,

poor growth of wood. I think I have let them bear too much.

RASPBERRIES.

CUTHBERT.—One of finest of berries but they have winter killed so badly with me that I have had to dig them all out. I think my land was too rich for them and grew the wood too fast and soft.

SHAFFER.—This variety has done remarkably well with me. It has winter killed but little and borne magnificent crops of very large fruit of good flavor. Fine for family use and home market, but too soft for shipping.

MARLBORO.—Fruit large and very firm, good bearer and hardy, but the bushes are poor slow growers, and consequently not a profitable sort with me.

CONRATH.—Received from Fruit Growers' Association. This has done remarkably well with me; I think it the best of all the black caps. Berries good size and firm. Flavor good. Bushes good rapid growers and perfectly hardy.

LOUDON is the best red raspberry I have yet tried. It is very large, very solid and very productive. The bushes are perfectly hardy and good growers.

Notes on Strawberries and Currants later on.

St. Marys, Ont. S. H. MITCHELL.

THE WHITBY MEETING.

AS USUAL, our annual meeting last month was well sustained by the presence of the foremost fruit growers in the province, the leading spirits in horticulture from our Agricultural College and the Central Experimental Farm, and by some representatives from our sister societies.

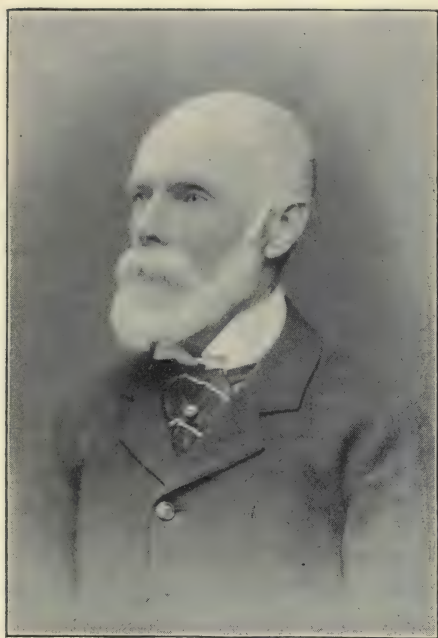


FIG. 1725. W. A. WHITNEY, IROQUOIS.

The meetings of the first day were held in the City Council chamber, and were called to order by Vice-President W. M. Orr, of Fruitland, the President, Mr. W. E. Wellington, being absent on a tour to Great Britain.

Fruits Hardy along the St. Lawrence were treated on by W. A. Whitney, of Iroquois, who drew attention to the excellent keeping qualities of the Fameuse and other varieties grown in that district. Next to the Fameuse he mentioned McIntosh

Red as one of the hardiest, and valuable also for size, beauty and quality for desert, but it drops early and is subject to the apple scab. The Ontario promises to succeed, and the Scarlet Pippin, which originated at Maitland, is a most desirable new variety, the originator, Mr. Harold Jones, having found a special demand for it as a dessert apple in Montreal. The Wealthy is also a great success, being hardy and free from scab, but must be thinned to secure good size.

Few pears will succeed; the Kieffer and the Flemish Beauty being among them; of plums he spoke highly of Lombard, Saunders, Glass and Yellow Egg, having been grown with success.

Mr. E. C. Beman, of Newcastle, spoke of pears for the professional and amateur, giving a technical description of several kinds, and was followed by our new director for Bruce and Grey, Mr. J. I. Graham, of Vandeleur, on Irrigation and Top Grafting. This gentleman has natural facilities for turning water on his orchards, and has utilized them in such a way as to produce the finest sized fruit, even in the seasons of greatest drouth. He had also some excellent results in top grafting which drew out an extended address from Mr. G. T. Powell, a noted horticultural lecturer from New York State, from which address we give the following notes:

By Top Working in propagation we can bring a Spy in earlier bearing, and make the King more productive. The wood of Spy is exceedingly hard, as is shown in the work of pruning this variety; it therefore forms an excellent stock for the more succulent wood of the King. Special selection of scions is of far more importance than usually supposed. Nursery men usually cut scions from young trees, which are in the wood producing age, and consequently this

tendency is emphasized from year to year, and our orchards become late in bearing. Scions should be cut from bearing trees, and from those which bear most abundantly, in order to propagate this characteristic. So also there are great possibilities in the way of propagating characteristics of size of fruit, color, flavor, etc. King scions chosen from the typical orchard tree and set on young Northern Spy trees gave fruit of even size, fine color, and bore at an earlier age. One tree for example yielded two barrels of fruit at the age of eight years. A Sutton Beauty tree, similarly treated, two years top grafted, gave two bushels of fruit.

The Kieffer pear had proved a good stock for Anjou and Bosc. The union was perfect, and promised to endure well. Anjou on Kieffer was much more productive than ordinarily; indeed the fruit needed to be thinned to prevent overbearing. The Bosc had succeeded almost equally well, and these two he valued most highly of all pears for shipping purposes.

Another important point emphasized by Mr. Powell was high tillage until July, to be followed by cover crops such as Crimson Clover, or Cow Peas, to be plowed under the following spring.

Mr. E. B. Edwards, of Peterboro, gave an interesting account of the excellent results in securing fine crops of Blenheim Orange apples as a results of tillage and spraying under the direction of the Government Superintendent of Spraying; and A. H. Pettit, of Grimsby, drew attention to the damage done the fair name of Ontario by allowed fraudulently packed apples to go forward to the British market. The secretary read a letter from President W. E. Wellington, saying that he had visited Covent Garden Market, and was much chagrined at finding the disfavor into which Canadian apples were falling owing to this evil practice on the part of speculators. A

strong resolution was passed by the Association pressing upon the Dominion the extreme importance of taking some action in this matter, by appointing inspectors at shipping ports with power to detect fraudulent packing, and prevent its export or at least erase false brands and fine the offender.

Prof. J. W. Robertson, of Ottawa, gave a most valuable address on the "Com-



FIG. 1726. HAROLD JONES, MAITLAND,
Originator of the Scarlet Pippin.

merce in Large Fruits," showing good success in 1899 in exporting pears. One hundred and forty-five twenty-four pound cases of especially fine Bartletts for example had sold in Great Britain at \$1.97 a case, netting the grower \$1.54 a case. The points required to ensure such prices were prime quality, large size, and fine condition on arrival. The best sizes were from two and a half inches in diameter upward, such as would require sixty or seventy pears to a

case. They must be picked at the right time, just when the seed is turning brown, never while it is still green.

For apples, even fancy summer varieties, a case holding 40 or 50 lbs. is best. A No. 1 stock, wrapped and packed in 40 lb. cases sold at from 7 to 9 shillings per bushel; but the British markets have no demand for small apples.

Another important point is to have large lots of one sort and one grade for best

to provide small compartments holding two or three carloads each. Better ventilation of holds for apple storage in 1900 is also promised, but all these provisions will be unavailing unless it is someone's business to look after them at time of loading. With care, skill and honesty, ultimate success in the export of fruit is assured.

For success there should be established a standard of (1) sizes, (2) of form, and (3) of variety; the name of both packer and grower should be placed on every package in order that the grower might be informed in case a packer or shipper put up his fruit fraudulently. Of course the packer alone would bear the blame and suffer loss in such a case, but it would serve a good purpose to have all this information on the package. The punishment for use of false brands might be confiscation of goods so put up, or at least removal of the grade marks and an exposure of the offender.

The San Jose Scale question was up for discussion, being introduced by Mr. M. Pettit, of Winona, and the vigorous action that has been taken by the Provincial Department of Agriculture in endeavoring to stamp out the pest, high eulogised. A resolution was passed favoring permission to treat moderately infested trees with whale oil soap, crude petroleum or fumigation, under the direction of an inspector.

Dr. Saunders, director of the Dominion Experimental Farms, addressed the meeting on New Hardy Hybrid Apples in Manitoba, showing some wonderful results obtained by crossing *Pyrus baccata* with Duchess and with Tetofsky. The Doctor has long been foremost of horticultural experts in Canada in this important field of producing new varieties of fruits by hybridization, and results of his work may be expected which will be of inestimable value to our North West. The Doctor also spoke on our Ontario fruits in Manitoba, showing what an excellent market was opening up for us,

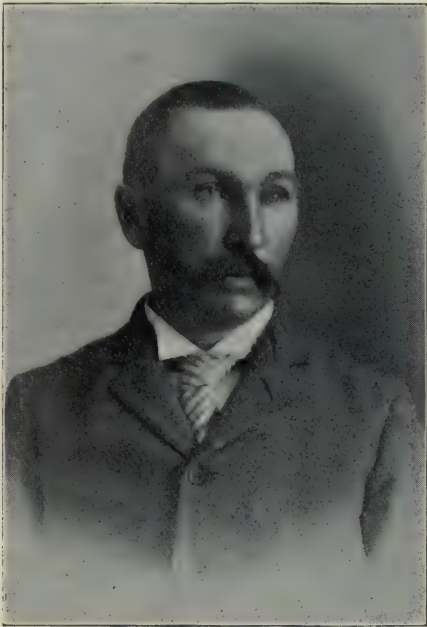


FIG. 1727. W. W. DUNLOP, OUTREMONT,
Sec. Que. Poml. Soc.

results. Canadian shippers forward too many varieties in a shipment to get bids from the best buyers. The growers should forward only large, sound apples uniform in size in each package, and these only. The second-class stuff and smalls must be otherwise disposed of; it had better be consigned to the manure heap than shipped, and more money would come back to the country for the selected portion than for the whole.

The cold storage facilities for fruit on steamships are likely to be improved so as

especially for our Concord grape. He also described the excellent work in progress of preparing a display of Canadian fruits for the Paris Exposition.

Dr. Hare, of Whitby Ladies' College, and Mr. J. E. Farewell and Mayor Routledge, of Whitby, gave excellent addresses; Mr. A. W. Campbell, Provincial Road Instructor, and R. Dawson Harling, agent of the Manchester liners spoke on their special spheres of work. The latter speaker gave fine stereopticon views of the new Manchester Ship Canal, a route of interest to Ontario fruit growers, since it opens up the whole interior of England to our goods.

It was cheering to have with us three delegates from the Quebec Society, viz.:

the president, Mr. C. P. Newman, of Lachine Forks; the secretary, Mr. W. W. Dunlop, of Outremont, and one of the directors, Mr. R. W. Shepherd, of Como. This latter gentlemen has had considerable experience in exporting a special grade of fancy apples for private orders in the Cochran case, reaching a class of people in this way who do not hesitate on account of price, providing they get the article wanted.

This reciprocity of visits and interchange of thought is mutually helpful, and we hope it may long be continued. We are pleased to show our readers the face of Mr. Dunlop, the secretary, and hope by and by to have the same privilege with Messrs. Shepherd and Newman.

TOP GRAFTING A PARTICULAR ART.

INDISCRIMINATE top-grafting won't do. As well as seeing that we have a robust tree and a good live scion, there should certainly, in my experience, be some approximation as to vigor between the tree grafted and the graft, and also a similarity of wood. For example, if we stick a scion of the Ben. Davis (a very vigorous grower here) on a Scott's winter (a spindling slow-growing tree here), what have we the first autumn even? An unsightly joint, looking about as well as a man's hat on a child's head; and in the second year the vigorous scion is so top heavy, has so outgrown the limb of the tree to which it has been united that it cannot stand the force of any wind and breaks off at the joint, thus rendering your time, labor and outlay worse than useless. There is much to be understood before we have this grafting business down to perfection, even if it is an art which the world has known for thousands of years. Not only must we employ it with a view to secure good fruit from poor trees; not only must we strive to better the coloring and texture and flavor of already fairly good fruit by a nice adaptation of suitable scions, but we must see in all this that the wood

consideration is attended to and vigorous scions put on vigorous trees and *vice versa*. The graftsmen who go about now, while they do a good enough job if making scions grow at all, do not understand this important matter as it should be understood—as the breeder understands for instance the coupling of his animals in proper lines to develop all the perfections of the breed—and hence it is that many orchardists who thought to have dead sea fruit turned into a delight to the palate and a good seller are disappointed to the very point of disgust. "Oh, anybody can graft!" is the cry of the amateur once he has seen it done, and certainly about anybody can stick on scions which may grow but which are likely to render the last state of his orchard worse than the first. To graft intelligently and with success as the result sought after, we want without doubt the best trained, most intelligent and most skillful scientists possible, and they must be as honest as they are expert also, or the transformation of unfruitful orchards into fruitful, paying ones is still a desideratum for the distant future to satisfy. Mean-time every grower of fruit should consider this matter seriously. A. E. BURKE, Alberton, P.E.I.

ORIGIN OF THE MCINTOSH RED.

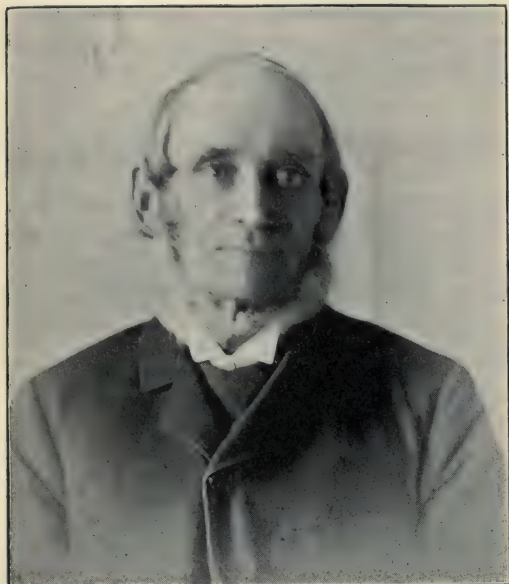


FIG. 1728. ALLAN MCINTOSH,
Originator of the McIntosh Red Apple.

SIR,—At the annual meeting at Whitby of the Ontario Fruit Growers' Association, the McIntosh apple came in for a good deal of praise by all who spoke of the best and hardiest apples. This has reminded me of a long delayed purpose of sending you two photos of the originator of the original tree, with a short sketch of his life.

From a manuscript autobiography now before me. I find that Allan McIntosh was born on the 24th of August, 1815, and some one of the family has written in the magazine, "Died Feb. 3rd, 1899." His grandfather was a farmer on the Mohawk river, in New York. His father came to Canada at the age of 18, and in the year 1811 settled on the lot in Matilda Township, ever since occupied by the family.

In clearing away the second growth for a building place, he came across some young

apple trees, which he spared. One of these was the original McIntosh Red apple tree.

His son Allan, about thirty years ago, began to propagate it, and the nursery is still being carried on by his son Harvey. It will be seen in the cut that the tree, and the man standing by, are both decrepid in appearance. The homestead was burned a few years ago, and the tree barely escaped with a little life on one side. I believe the old tree has now ceased to stand.

Let us pay a deserving tribute to the man who has done so much for our fruit interests, by preserving his memory in the pages of the Horticulturist.

Iroquois.

W. A. WHITNEY.

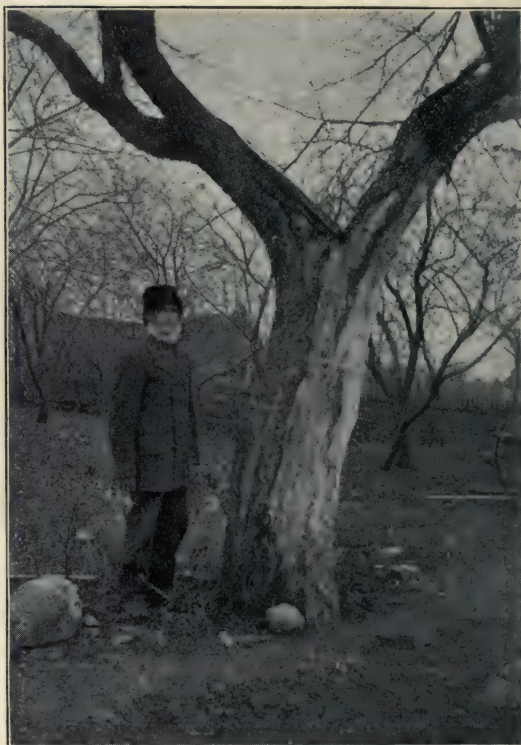


FIG. 1729. THE ORIGINAL MCINTOSH RED
APPLE TREE.

ONTARIO ROGERS GRAPES IN MANCHESTER.

FAILURE having attended the previous efforts made to introduce our Canadian grapes into the British markets, owing to the varieties selected for the experiment, the Board of Control of Fruit Experiment Stations of Ontario, acting under instructions received from the Minister of Agriculture for the Province, instructed the secretary, Mr. L. Woolverton, to make an experimental shipment of black and red Rogers to B. W. Potter & Co., Manchester, England.

The Concord and Niagara grapes were not only distasteful to the British palate when compared with Hamburg, Chasselas, Tokay, or even Almeria grapes; but they were also unsatisfactory shippers, being easily crushed, easily loosened from the stems and subject to mould. The several carloads of these former kinds which were placed upon the British market created a strong prejudice against Canadian grapes and led dealers to strongly discourage any further attempts to introduce them.

The writer was perfectly confident that certain varieties of Rogers' Hybrids, such as Lindley, Agawam, Wilder and Salem had both the keeping qualities and the excellent flavor which would ensure an ever increasing demand if once introduced. He therefore made up 515 cases, chiefly Lindley, labelling them all Rogers' Red or Rogers' Black as the case might be, for simplicity's sake. The cases were the same size as the pear cases, about 5 inches deep, 2 feet long and 1 foot broad. Four veneer baskets with wire handles, holding about 4½ lbs. of grapes each, were placed in each of these cases, and into these the grapes were carefully packed about October 1st. Each case therefore contained from 18 to 20 lbs. of grapes, and having been allowed to stand about a

week before packing, the stems were well dried and in condition to resist mould. The steamer Manchester Port, on which cold storage space had been engaged for the consignment, was taken for service to Africa and consequently the fruit did not leave Montreal until November 5th.

Now, while the returns from this venture have not been a financial gain, owing to the strong prejudice against their introduction, the accompanying reports from the consignees, from Peter Byrne, Ontario Government agent at Liverpool, and from the British press, combine to show that we have scored a real success, which, if persistently followed up will be a great financial gain to Canadian grape growers.

COPY OF LETTER FROM MESSRS. B. W. POTTER & CO.,
MANCHESTER, ENGLAND, REGARDING CONSIGNMENT OF GRAPES.

Manchester, Dec. 2nd, 1899.

Sir:

We confirm our letter of the 27th ult., and now beg to report fully re grapes ex "Trader." The fruit sold in lots at an average price, taking the bad crates with the good ones, and as all the marks had faulty baskets, it was impossible to discriminate. If we had to choose the varieties we should say that Rogers' 15 and 44 carried the best. In some cases the baskets had been filled too full and the top bunches being crushed spoiled the look of all. The black variety would as a rule take the best, if in good condition. The cases should be marked plainly "Black, or Red, etc." We do not consider the paper over the top of the basket an improvement.

The fruit did not appear to deteriorate in our cold air stores (kept at 8 degrees above freezing point) and in the open air market two or three days did not hurt any of those in good condition to start with. Some shopkeepers say they do not not keep in the shop, but we feel sure that if the grapes are emptied out of the baskets and any bruised ones cut off they will keep for some days and improve.

As we said in our last letter, the flavor suits some people, but others do not like it at all. The former, however, are quite numerous enough to make the sale, now they are known, quite easy at a price that would certainly rise as sellers gained confidence, and we think that even when other grapes are at their cheapest you could realise a paying price. Hawkers and shopkeepers who would only pay from a sovereign to thirty shillings a score crates last week had paid up to sixty

shillings this week. We sold quite a number of baskets to interested parties who called at our office at 1s. to 2s.

If we had reported to you during the first three days after arrival, we should have said the trial was an utter failure. We could not get a bid from shopkeepers or hawkers, and it really seemed as though we should have to give them away literally, especially as some of the crates were running. This state of affairs naturally made us anxious to get them off our hands, so when the barrowmen started bidding 20s. a score crates, we let them go and gradually worked up to 40s. At these prices they were thoroughly distributed all over the district. We kept back some fifty crates until this week just to test their keeping qualities and to see how the public took to those sold. They kept well and we made from 2s. 3d. to 3s. per crate as mentioned above.

It is most unfortunate that the shipment was all crowded into one steamer and was so much delayed, as it now really looks as though a second lot would have paid the loss on the first. We enclose cuttings from various papers.

COPY OF PRESS NOTICES.

Grocers' Review, Nov. 28th, 1899.—"Success has attended the experimental shipment of grapes to Manchester. We have received a sample basket of the grapes, which the Ontario Government is introducing into this country, from Messrs. B. W. Potter & Co., produce brokers, 7 Corn Exchange Buildings, Manchester, and can testify to the excellence of the fruit."

Manchester Guardian, Nov. 14th, 1899.—"Messrs. B. W. Potter & Co., produce brokers of 7 Corn Exchange Building, Manchester, inform us that the Government is making use of the refrigerating chambers which are fitted on the steamers from Manchester-Canadian line to introduce fresh fruit, grown in Ontario, into this country. An experimental consignment of grapes has been shipped by the Manchester Trader, due in the canal next Saturday. Great care has been exercised in the choice of the suitable variety, and the grape chosen is a hybrid between the best European and American species. It is grown in two colors—red and black—and is said to be of a large size and rich flavour. The packing has received particular attention, and the fruit has been put up in small 'vener' baskets with handles, each basket containing about 4 lbs. The result of the experiment will be watched with interest."

Daily Mail, London, Nov. 28th, 1899.—"There is every prospect of a cheap supply of grapes being put upon the English markets in future years during the autumn and winter months. Already the test shipments of these fruits, carried in refrigerated chambers, are on show at Manchester, and the trade expresses much satisfaction at the salable nature of the fruit. There can be no doubt that this great development of the Canadian fruit trade in the United Kingdom will do much to extend the demand for cheap late grapes, for hitherto the middle and working classes have had to depend upon the hard Spanish Almerias, which are sent into our ports packed in cork-dust in barrels

weighing from 50 lb. to 60 lb. gross. These are the well known green grapes, so popular with grocers and tried fruit traders. The Canadian supply will ensure ample quantities of luscious, aromatic grapes of far superior quality to the Almerias and at a reasonable price. These new grapes have already produced a bit of a sensation in fruit trade circles, for when arrangements have been completed the English markets will be kept well stocked with regular shipments of fresh grapes put in dainty little baskets, and thus render the storage of Almeria grapes by market men, to ensure supplies after Christmas unnecessary. The quality of the fruit is excellent, and it is highly satisfactory to know that Canada can send to this country all late cheap grapes we need. Although, as previously announced in the '*Daily Mail*,' the Canadian fruit exports will introduce the finest pears that are grown, yet the addition of late grapes by no means exhausts the list. Various other fruits are to be sent in time, and the French, Spanish and Dutch shippers will find many of their fruits displaced by the superior products despatched from Canada."

COPY OF LETTER FROM MR. PETER BYRNE, AGENT FOR ONTARIO AT LIVERPOOL, ENGLAND.

Liverpool, Dec. 1st, 1899.

Sir:

I visited Manchester a few days ago to make inquiry about your consignment of fruit. I learned from Mr. Potter that though the grapes had been seriously delayed in transit they arrived in very good order, with the exception of a small percentage which were somewhat damaged. Some of these I saw in Mr. Potter's office, which had been taken out of store that day. They were wet and to some extent affected with mould. Mr. Potter gave me some particulars of what he had done to effect a satisfactory sale and referred to the trade prejudices and other drawbacks he had met with. I learned that notices had appeared in the local papers drawing attention to the shipment, and a very good one appeared in the London "*Mail*" from its Manchester correspondent. I sent you a copy of this paper by last post. At the time of my visit all the grapes had been disposed of except fifty crates. The apples I understand turned out very well, except the "Snows," which had suffered some damage. Regarding the grapes, it appears to me that if steps were taken to give the public better opportunities of seeing and tasting them, they could not fail to sell promptly and well on their merits. I looked into all the fruit stores in several leading streets in Manchester expecting to see samples of your grapes, but in vain. I saw nothing in the shop windows half so tempting as your neat little baskets of grapes would be at the comparatively reasonable prices at which they could be sold. It has occurred to me in thinking over the matter that in future shipments a special arrangements should be made with one or more leading retail shops in the large cities to expose the grapes for sale in their shop windows, at the same time guaranteeing the owners against loss for a season or two until the fruit had won its way into public favor. In this way I am convinced that the prejudices of the fruit dealers would be

effectually overcome and a successful and permanent trade be eventually established on regular lines.

The shops selected should be of the best class with good show windows and situated in leading thoroughfares. This class of stores have at present hanging in their windows bunches of English hot-house grapes and foreign varieties at prices varying from 16 cents to 80 cents per pound. Your baskets would look cheap at say one shilling and six-pence, and I believe would go like hot cakes if they only got a fair chance to be seen and tasted by the public.

EXTRACT FROM H. M. GIBSON'S LETTER OF DECEMBER 2ND, AGENT MANCHESTER LINER AT MANCHESTER.

You will be glad to hear that Mr. Potter has been successful in disposing of all the grapes and apples sent to him per Manchester Trader. He had some trouble in getting the grapes off, but was energetic enough to see that they were placed amongst the coster carts and various small shops. With regular shipments I am convinced this trade will be most successful, and that the grapes will take well here.

STORAGE OF APPLES IN WINTER.

IT IS a very stale but oft repeated advice, to spread out winter apples and pears on shelves in the cellar, and the decayed ones to be removed from time to time. We must wholly disagree with such a course, for when exposed, the apple rapidly loses its moisture and becomes shrivelled, which also causes deterioration of quality.

On this account apples and pears in cool storage should be kept tightly closed, and they will open up plump and fresh.

The great secret for keeping apples and pears is a cool temperature, and 35° to 40° F. will be found most satisfactory. Usually

apples are left to hang too long on the trees and become too much ripened; then they lie in piles or are stored in barrels in hot places, perhaps right out in the sunshine for weeks until the hot weather is over; then they are shut up in a warm, close, house cellar, with a temperature about 50°, and then the farmer wonders why his apples do not keep.

Let him try gathering them as soon as mature, pack them away at once in a cool place where the temperature does not rise above 40° and see whether the results are not much more satisfactory.

THE CANADIAN HORTICULTURAL ASSOCIATION met in Ottawa, Sept. 18-21. This is a trade organization, composed chiefly of professional florists, and therefore quite distinct from our own, which is composed chiefly of professional fruit growers and amateur florists, with a few professional florists and nurserymen.


Mr. James McKenna, of Montreal, is the new President elect, and A. H. Ewing, of Berlin, Secretary. It was decided to institute, if possible, a trade paper, to be called "The Canadian Gardeners' and Florists'

Exchange," and to be issued bi-weekly; size 10 x 12, and four pages.

Mr. McKenna is an ex-Alderman of Cote des Neiges, P. Q., and a partner of the firm of P. McKenna & Son.

THE TENTH ANNUAL CHRYSANTHEMUM show of the Toronto Gardeners' and Florists' Association was a grand success. It was held on the 15th to 18th. The quantity and quality of the exhibits were unprecedented, and the arrangements reflected great credit on the committee in charge.

GRADING AND INSPECTION OF APPLES, ETC.

T the recent meeting of the Ontario Fruit Growers' Association held at Whitby, great indignation was stirred up among the fruit growers at the reports of fraudulent fruit-packing on the part of speculators who buy whole orchards and try by facing or by false grade marks or by using fictitious names, to secure for the poor fruit the prices of good fruit. An example of bad packing was placed on the table by Mr. T. H. P. Carpenter, of Winona, being samples of fruit from a barrel purchased by him, which was topped with large apples and filled in with ciders.

After considerable discussion, a general resolution was passed looking for inspection in order to prevent this crying evil for which the fruit growers are not responsible, but speculators who buy immense quantities and send out gangs of packers who are paid for their work at a contract price by the barrel.

A strong committee was appointed to deal with the whole question, and prepare details for a grading and inspection act for the consideration of the Dominion Minister of Agriculture. The following members of this committee met at the Lincoln House, Grimsby, on Friday, December 15th, 1899, viz., A. H. Pettit, E. D. Smith, Geo. E. Fisher, T. H. P. Carpenter, and the executive committee, viz., W. M. Orr, G. C. Caston and L. Woolverton. After careful consideration and much discussion, the following resolution was arrived at, which we believe will commend itself to our fruit growers generally:

Resolved, That both the Dominion and the Provincial Legislatures be asked to consider the advisability of legislation to carry out the following regulations for the sale of apples and pears,—

1. That all apples and pears packed for sale in closed packages shall have the minimum diameter of the fruit inside marked in plain figures on the top or face of the package, thus—2 inches, $2\frac{1}{4}$ inches, $2\frac{1}{2}$ inches, etc., as the case may be, and if more than ten per cent. run below the size specified, the package shall be considered fraudulently packed.

2. That all such packages shall also be stamped with certain grade marks which shall be defined as follows:

(a) X A No. 1. Sound apples or pears of uniformly large size and high color for the variety named, of normal form, at least 90 per cent. free from worm holes, scabs or other defects.

(b) A No. 1. Sound apples or pears of nearly uniform size and good color for the variety named, of normal form, at least 90 per cent. free from worm holes, scabs or other defects.

(c) No. 1. Sound apples or pears of fairly uniform size, at least 80 per cent. free from worm holes, scabs or other defects.

(d) No. 2. Apples or pears that are disqualified from being classed under any of the afore mentioned grades, but which are useful for culinary purposes, and not less than two inches in diameter.

3. That all apples or pears packed in closed packages be subject to inspection by the Government Inspector, and, in case of ten per cent. of the packages of any one grade being found fraudulently packed, the shipper be liable to a fine not exceeding 50 cents a barrel for all packages of that grade.

4. That provision be made for inspection not only at the ocean ports, but also at the request of the shippers, at local points of shipment in case of car lots.

5. That for local inspection a reasonable scale of charges be made of the shipper re-

questing it, gauged according to the number of carloads to be inspected.

6. That in such latter case, the inspector shall apply some distinctive inspection brand to show that the packages had been inspected and found honestly packed; but, if found

fraudulent, the inspector shall have power to forbid the shipment until properly packed and graded.

7. That in all cases the name of the packer and of the shipper shall be plainly stamped on the top of each package.

THE MOYER GRAPE.

I HAVE recently seen some rather flattering reference regarding the good quality of Moyer grape which prompts me to give my experience with it. When it was first introduced I invested, and soon found that it was a slow grower with short, brown, hard wooded joints, which indicated the desired hardness. I watched for three or four years for those great red bunches of grapes, as good as Delaware, but instead I found the blossoms weak and defective, and although surrounded by strong, vigorous neighbors blooming about the same time, the fruit clusters were never more than *nubbins*. I have thrown them out, and will fill their place with Worden and Geneva next spring.

The Brighton improves with age and good company. It produces regularly fair clusters of the very best quality. Early in the season be-

fore fully ripe they are quite pleasant to the taste, but when fully ripe they are easily the best grape on the list for this section.

The Winchel is also a good amateur's white grape, it is sure to give a fair crop of fine fruit very early in the season.

I had the Mills from the Association some years ago. Although a little late in ripening for this district I had this year some grand bunches of beautiful grapes which were much admired at our local fall show; the vine was trained against the south side of a building, and the clusters bagged so that the vine had some protection from the early frost. Moore's Diamond grows along side of Mills, and is so far a lamentable failure.

J. P. COCKBURN.

Gravenhurst, Muskoka.

REPORTS coming in recently of sales of our pears and peaches in Covent Garden Market are most encouraging. Duchess and Anjou pears are selling for \$2.00 per half bushel case, and even Kieffers have been bringing \$1.50. The Elberta peach is proving a grand export peach, as we anticipated it would be, bringing \$2.00 per half bushel case.

The following clipping from the Daily Mail, London, England, will be read with special interest:

"One of the latest wonders of the fruit trade is the departure that has been made by our colonial fruit producers.

"A few days ago a goodly parcel of Canadian peaches and pears was sold in Covent Garden Market by auction, with the most satisfactory results. The peaches were late Crawfords and Elbertas, and they were particularly good. But

the pears were exceptionally fine, and they made as high as 6s. 6d. per small case.

"As the result of this sale it is clear that the Californian fruit-growers will have to look to their laurels. Canadian pears, such as the prime Anjou (the variety which made the price quoted) are of finer quality than those sent from California. The fruit reaches us in better condition, is more aromatic and juicy, and is perfectly adapted for the English fruit trade.

"The shipment was sent out under the auspices of Professor Robertson, of Ottawa, who is specially responsible for the trial shipments which have lately been sent over in small fancy packages, and there is no doubt that in future seasons Canadian pears will secure the patronage of the best buyers in the trade.

"The representative of Professor Robertson, who is now in this country, informed us that they have now obtained the right temperature to keep the fruit in perfect condition while on board the fruit boats, so that nothing stands in the way of large and regular shipments of Canadian peaches and pears during the autumn months. Millions of both kinds of fruits are promised the trade for next year.

OUR HIGH GRADE FRUIT IN ENGLISH MARKETS.

Now that such earnest attempts are being made to place our very finest fruits in first-class condition on the English markets, it is encouraging to read such testimony as the subjoined, which was addressed to Prof. Robertson.

To Professor JAMES W. ROBERTSON, Commissioner of Agriculture, Ottawa, Canada:

SIR,—I duly received the sample cases of Canadian apples and pears, and a box of peaches which you sent me, and as your representative for the distribution of the fruit in this country informed me that you would be pleased to have my opinion on same, I herewith send you a report which is disinterested, and can therefore be depended upon with the utmost confidence. I am in a position to speak authoritatively upon this subject, as an expert from a market point of view, being the only fruit trade journalist who has, for just upon a quarter of a century, made choice fruit production, packing, and distribution a special study, that is, in the United Kingdom.

APPLES.

The apples were Snows, and when opened, the fruits were found to be in prime condition. Not one was unsound. They were wrapped separately in paper, and had been packed in layers and in rows. A better style for good fruit could not possibly be conceived. The fruits were medium in size. Possibly we want a larger sample on our markets, though the quality was excellent, and I was very much struck with them altogether. The package was rather small for apples. When the parcel came to hand, there was a large supply of ordinarily grown English apples on the market, and this would tend to affect prices. Still, for a large circle of buyers, the small package should form a good attraction. Large quantities of such fine eating apples, packed in these handy boxes, would secure a free sale directly their quality became known to the general public. I mean in the original package. I do not feel inclined to say absolutely that a bushel box would be better, but perhaps both sizes would prove advantageous to the trade generally.

PEARS.

Then as to the pears. They had been put up in the same size of box as the apples, and each fruit had been wrapped in a small square of paper. They were absolutely sound and in grand condition. I kept some of these pears for two weeks, and when fully ripe the flavor was delicious. They were *Beurre d'Anjou*. From these samples it is clear that Canadian exporters can easily put

high quality pears upon the English markets, and at the right time, too. I am satisfied that for quality, size, clearness of skin, and condition, that they will readily compare with the best Californian and French fruit. A better pear than these *Anjou* never entered the English markets, and I am confident that a big future lies before the Canadian pear trade in the United Kingdom. I was immensely pleased with these fruits and the prices realized, justifies the commendation I give them. With care in grading they would prove a very serious competitor to the French fruits, as the sample cases under notice were put up in better style, and the fruits were certainly cleaner skinned, and much more dainty as eaters, than the foreign ones referred to.

PEACHES.

Then as to the peaches. These were *Elberta*. The fruits had been partly covered with paper in which a strip of wadding had been included, so as to protect the fruits from bruising. Under this method, when the lid of the box was taken off, and the layer of wadding removed, the tops of the fruits would be exposed to the view of the buyers. Here the specimens were in fairly good condition, but not what could be termed perfect, the flesh of some being a little discoloured. All in the box I had were, however, eatable, of excellent size, and like the apples and pears, had been well and evenly graded, an important feature in the fruit trade here. The color was good, but the flesh was too fit, if I may expressively put it thus, that is, they needed to be sold in a day or two at least, not being in keeping condition. They were not so juicy as our forced peaches, but the flesh was firmer, and as an advocate of fruit-eating, I claim that these Canadian *Elberta* peaches are magnificent, and I should like to be able to live on them without anything else for a month. They are very delicious, possess a nutritious flesh, and should prove a great boon to the consumers in all of our cities and towns.

COMMENTS.

My report will be found most encouraging to those on your side who have taken a great interest in the development of the Canadian fruit industry, though the praise given to the packages and their contents is due to merit, and well-deserved. The Canadian fruit growers are to be congratulated upon having the fruit export trade, including packing, shipment and distribution, dealt with in such an admirable manner by the officials of the Department of Agriculture at Ottawa. It is my decided opinion that at present the Canadian fruit exports are better put up and more efficiently handled than those from any other colony shipping to the United Kingdom, including Tasmania.

SAMPSON MORGAN.



INDIVIDUAL FLOWER VASE.

THIS handy trifle has proved very useful to us in decorative work. We have it made in two sizes; the larger, shown in the illustration, is one-half inch in diameter and four inches in length, the smaller being three-eighths of an inch in width and three or four inches long. The rubber cap fits tightly and seals the vase effectively, no matter in what position it is placed when in use. In the centre of the cap is a small hole that will scarcely admit an ordinary pin without expanding, yet by a slight pressure any flower with a woody or stiff stem can be introduced, the rubber holding it in place. The vases are filled and the rubber caps fitted under the surface of the water, where they slip on very easily. The flower is then very readily pushed in, after which they are as one piece.

By the use of this vase the flowers were kept fresh from six to eight hours in a warm room. The vases do not show to any extent, the foliage of the roses covering them.

For dinner table arrangements, where the blossoms are sprayed on the cloth, the narrow, clear glass vases are easily hidden by the foliage of the flowers or accompany-

ing greens, and the fresh beauty of the decorations lasts throughout the entertainment.

For garnishing a bank of green or for use over doorways or arches in lofty rooms,



FIG. 1730. INDIVIDUAL FLOWER VASE.

where the heat causes flowers to wilt rapidly, the vases will be found to be invaluable, also in certain decorations of light greens, anywhere in fact where flowers are

used separately they add hours to their life and beauty.

The device will be found useful, as well, in mantel and basket work, as they are readily placed in soft soil and the moss of baskets. We find that a vase without a cap, holding four or five sprays of lily of the valley or other flowers adds considerably to a plant basket when it is inconvenient to disturb it to crowd in something with roots.

The spray of flowers on the handle also lasts much longer when the vases are used. A rubber cap with a larger opening readily admits and holds orchids, such as cattleyas, and other soft and thick-stemmed flowers. For a window display with curtains of asparagus or on tree stumps and branches, they hold and keep the flower better than it can be kept in any other way.—*American Florist*.

JAPANESE ZEBRA GRASS.



FIG. 1731. ZEBRA GRASS.

IN our garden the hardy ornamental grasses have always been favorites. But among our collection of these, comprising many sorts, there is no other one kind which gives better—we were about to say gives equal—satisfaction, to the Japanese Zebra Grass, *Eulalia japonica zebrina*.

The accompanying engraving affords a very good representation of the plant we are speaking of. Unlike all other variegated grasses, this one has its striping or marking across the leaf,

instead of longitudinally. It grows five or more feet in height, forming a most striking and graceful plant, resembling nothing else that we know of in cultivation. The expanded flower spikes resemble the ostrich plumes, and when dried, last for years.

This variegated Grass we find useful in many ways. In the mixed border amongst herbaceous plants it is a pleasing and striking object, and in a cut state for the decoration of large vases it is most valuable, as its graceful arching leaves gives a degree of brightness to floral arrangements not otherwise obtainable. The variegation, too, is clear and well defined, a circumstance which adds to its beauty. It is a great gain to be able to cut spikes of it four feet high for indoor decoration.

When first introduced from Japan it was believed that this plant would not prove hardy. Years of cultivation with it as far north as Buffalo proves it to be entirely so, and we are able to cut from it in the open borders up to the end of November.

Any soil not too rich suits it; in rather dry poor material we find that the variegation is more clear and defined. We have grown it in pots the year around, and find that it makes a capital plant for mixing with Ferns and other fine foliaged plants in the conservatory.

This very desirable plant may now be had of all dealers in hardy plants. It can also be raised from seed, packets of which can be bought for about twenty cents each.—*Popular Gardening*.

TUBEROSES EASILY GROWN.

If to be grown in the open, start the bulbs in pots in March. Use small pots, one bulb in each, planting so the crown will be a little above the surface of the soil. Set in a warm place; keep the earth moist but not wet. When the bulbs show growth, give a cooler location, as rapid growth tends to weaken the plants.

Give fresh air freely, but do not allow any chills, as the tuberose is very delicate and tender. Set the pots out of doors for a time on mild, sunny days. Never give more water than is necessary to keep the soil moist. If kept too wet there will be few if any blossoms. About the first of June transplant to a sunny spot in the garden, where there is a good soil which has been freely fertilized with well decayed cow manure. To secure fine blossoms the soil must be rich and mellow. When the flower stalks appear tie to a strong support with a narrow strip of soft cloth, for wind, rain and sometimes their own weight will cause them to break. Should the nights grow cool before they flower, cover with newspapers, which are light and a perfect protection.

If for house growth, set the bulbs in May, for succession of bloom, from April to June, at intervals of from two to three weeks. Fill six-inch pots with one part each of sand, leaf mould, old

cow manure and good garden soil. Treat as directed above, sheltering from the intense rays of the sun and keeping in mind the caution regarding watering too freely. The pots may be kept on a sheltered piazza if preferred. Water about once a week with liquid manure. Should the green aphid appear spray with soapsuds or a very weak solution of carbolic acid. The tuberose is a charming plant, with flowers of waxen white and subtle, delicate, though heavy perfume.—*American Agriculturist*.

THE AURATUM, or the Gold Banded Lily of Japan, is one of the most magnificent lilies that is grown in the garden. It is hardy in dry soils but rots much more easily than other sorts in damp soils. The leaves are long and pointed, and the stems are very slender but strong and wiry. The flowers are very large, the petals being of the purest snowy whiteness, thickly spotted with chocolate crimson spots. It sheds a most delightful fragrance, which is a blending of vanilla, nutmeg and it would seem of all the sweet perfumes known. These bulbs are seldom ever sent out before November. From several bulbs I have had flowers for about one month, each stalk blooming at a different time.—*American Florist*.

ABUTILONS.

PENDANT flowers are always admired, as there is a charm about them; and the Abutilon is one of the most serviceable for window gardening. The erect, stately form of some kind, and the graceful flexibility of others, linked with clean and clear cut foliage renders them always charming.

Among the old sorts, for years my favorites, were the Thomsonii, with its orange flowers; Boule de Neige, white, and Lantana, crimson. A. Megapotamicum variegatum is so slender

and flexible, I always grew it with Boule de Neige in preference to any other support, and the result is charming, this being such a profuse bloomer.

The new sorts are so handsome and varied one scarcely is able to say which to choose. The Lavitzii is of dwarf habit; and of great value in the garden and house. Souvenir de Bonn, with its variegated leaves and orange flowers, should be in every collection.

Eclipse, a semi-drooping spotted leaf; and Erecta, a bright pink of outstanding flowers;

May Miller, a deep rose; Thomsonii plena, with golden spotted leaves; Lanata, deep red flowers; with Darwinii in bright orange, veined with red, make a fine collection and not expensive.

They have few superiors as balcony and garden plants; are continuously in bloom; and with the exception of the geranium there is no class of plants that has been more improved by cross fertilization. It requires much sunlight to grow to perfection the variegated sorts, and if this is not abundant, choose, by all means, the plain leaf. The running or trailing Megapotamicum variety, of bright red, yellow and brown centre, makes a nice border next a row of Darwinii, and then a line of Lantana, and, is possible, a centre of the golden spotted Thomsonii plena.

A bed of two or three dozen of these flowers, arranged tastily, is one of the handsomest found in a large and expensive garden; and from one plant each we can grow as many as we wish.

Some are slower in growth than others, therefore the Darwinii should come next the border. Cutting back is a blessing to them truly, so do not fail to trim well.

They harmonize finely with Crotons, Dracænas, Ferns, Palms and kindred plants, and well grown are a joy forever. A cool rather than warm location suits them best, yet not too cool.

Too much heat is inducive of red spider, and gives them a straggling appearance. Shower them upper and under frequently, and if done with regularity, the spider will not trouble them.

If pots are plunged in the ground, take the greatest care the roots do not come through the bottom of the pot. To avoid this set the pot on a flat stone, or cork them. Set in pots they are quite as thrifty and require less labor, and the growth is more compact.

In the country, never more than one or two of these modest and attractive flowers are usually seen in the house, but an assortment will give as much pleasure as a fine bed of pansies do in summer, and both prefer a somewhat sheltered place. At the closing day of my life, I find the love of flowers increasing instead of diminishing, and the need of a small conservatory more pressing since I have lost every treasure I possessed in this line by the blasts of winter.

M. AGATHA HOSKINS.

Newport, Vermont.

CAULIFLOWERS THAT WERE PROFITABLE.—A noticeable exhibit at the Hamilton Society's Flower Show on the 8th and 9th of November, was some immense heads of cauliflower sent in by Mr. H. H. Hurd, of Burlington. From $2\frac{1}{4}$ acres Mr. Hurd gathered 14 tons of cauliflowers, and the cash proceeds were \$600!

Our Book Table.

CATALOGUES.—Herb and Wulle, seed and bulb growers, Naples, Italy. General catalogue of seeds.

STRAWBERRY CATALOGUE and price list: Charles H. Snow, Cummings Bridge, Ont., for spring 1900. In addition to the standard varieties, Mr. Snow advertises a new berry called Snow's Perfection.

ORNAMENTAL SHRUBS for garden, lawn and park planting, with an account of the origin, capabilities and adaptation of the numerous species and varieties, native and foreign, and especially of the new and rare sorts suited to cultivation in the United States, by Lucius D. Davis; fully illustrated, published by G. P. Putnam's Sons, New York and London, 1899.

This book of 338 pages embellished with over 100 illustrations in one of the most comprehensive and valuable yet published on the subject of

shrubs. It is addressed to both scientific men and those who while lovers of plants have no knowledge of plants. It is handsomely bound and printed in large type on good paper. We are sure all garden lovers will be interested in it.

HOW TO PLAN THE HOME GROUNDS by S. Parsons, Jr., ex-superintendent of parks, New York city, with illustrations by W. E. Spader, published by Doubleday & McClure, New York, 1899.

THE author of that charming work "Landscape Gardening" has again given the public another valuable work on horticulture, less expensive, and if anything more practical than its predecessor. It sets forth the simple basic principles whereby the home grounds may be made beautiful. In the short space of 250 pages all the elements of landscape art seem to be treated of and dealt with by the hand of a master.



The Canadian Horticulturist

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,000 copies per month.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

COLD STORAGE.—A magazine devoted to Cold Storage, published monthly in New York, contains Prof. Robertson's details for construction of cold storage house in December number.

LIQUID AIR promises soon to be commercial product, purchasable by the gallon or by the barrel! A splendid plant for its manufacture has been built in New York City, with a capacity of about 800 gallons a day.

FLORISTS AND AGRICULTURAL SHOWS—We find the professional florist slow to exhibit at our amateur shows. If there is a long list of money prizes he will come to carry them away, but as for showing with a view of educating the public in the culture and growth of flowers for itself he is not in favor of it. Now we think he is making a serious mistake, for the more interest the ordinary housekeeper takes in window plants the greater the demand for the products

of the professional. Sanders, addressing the Chicago Florist's Club, said :

If my assertion is correct, that shows are an educator of the masses to love flowers, they should be encouraged in every way by those making a living from the sale of all agricultural products, which you see takes in all kinds, from state and county fairs, exhibits at horticultural and florists' societies' monthly meetings, up to the grand yearly fall show of flowers. Suppose for a moment, in your estimation, a good many of the exhibits are rather tame affairs. Do your share to improve them. Surely none will dispute, if a flower show, in whatever form, encourages a taste for flowers, and causes more to be used, the grower can have no kick coming. Has it not been a fact at every one of our fall shows, prices for all good stock rise during that week, however dull the trade has been before. This being so we opine the wholesale man is equally benefited, as he gets bigger commission by the booming of his trade.

THE SAN JOSE SCALE was the chief subject up for discussion at a meeting of the Niagara Peninsula Fruit Growers at St. Catharines on the 15th of December. A previous meeting had met and adjourned without reaching any

agreement regarding the methods of routing the pest. A large number of prominent growers were present on the occasion, some of whom were bitterly opposed to the act recently passed for the destruction of the insect. After considerable discussion of a report by a committee, a resolution, modeled after that passed at our Whitby meeting, was considered and passed after a warm debate. The resolution approves of the efforts of the department to stamp out the pest; asks for a continuance of inspection; the destruction of all badly infested trees; and in case of trees being slightly infested that the owner have a choice between their destruction or having them treated under the direction of

an inspector on condition of bearing a share of the expense of such treatment; that all nursery stock be fumigated previous to sale, under the eye of an inspector. One clause was added that was not included in the Whitby resolution, viz., that the owner have a voice in estimating the value of his trees destroyed. This latter provision would surely cause endless disputes and litigation. We think it far wiser that a reasonable basis be established, and then let the application to each individual case be settled by the inspector. Badly infested trees are of no real value anyway, and the privilege of treating trees slightly infested is surely a provision that should satisfy everyone.

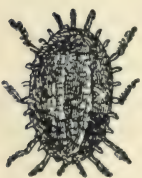
THE TEMPERATURE FOR HOUSE PLANTS.

ON cold nights when there is a liability that the temperature will fall below the danger point, it is well to spread newspapers in the window and draw shades so as to prevent as much as possible the loss of heat. The plants themselves should be covered with papers, or if possible should be removed from close proximity to the windows. If placed in the centre of the room, preferably upon tables, or at least well above the floor, they will often escape injury, while similar plants remaining in the window would be frosted and perhaps killed by cold.

As a rule, plants do best at a temperature 10 or 15 degrees colder than they need during the day, and most of the species commonly used as house plants do no need over 50 or 60 degrees at night and will not suffer if the temper-

ature falls as low as 40 degrees, although if such a low temperature be continued for several days it will check the growing of most plants. In case plants have been frozen they should be slowly thawed out. While it will perhaps be impossible to save the foliage of tender tropical plants, the plants themselves, as well as the foliage of the hardier ones, can often be saved. They should be removed from the direct rays of the sun and kept at a temperature of 35 to 40 degrees until they have thawed, when it may be gradually raised. Cold water can also be used to advantage in thawing them out, but the temperature should be kept as low as 35 degrees as long as frost remains in the plant. Water used at 50 to 60 degrees will generally do more harm than to allow the plants to thaw out themselves.

—*American Agriculturist.*



THE MEALY BUG.—What is known as the Mealy bug is a flat, tender, yellowish insect, of the form shown in the engraving, and is covered with a white mealy substance, from which the common name is derived. It is especially

troublesome to Coleus, and many soft-wooded plants. With a little care it is not difficult to eradicate. Remove and destroy all that may be found, then syringe the plant two or three times a week with soapsuds to which has been added a little kerosene, say two tablespoonfuls to a gallon of suds.

Our Affiliated Societies.

HAMILTON.—The Hamilton Horticultural Society held its fall exhibition on Wednesday and Thursday, November 8th and 9th, in the new hall, over Oak Hall clothing store. The display made by amateurs was much better than in 1898, and will probably result in a still greater increase in this class of exhibitors at future shows as the members are learning what they have to compete against and many who have hesitated about bringing out really good specimens will not be deterred by the fear of being totally eclipsed.

Mr. Goodall, gardener, Asylum for Insane, and Mr. W. Hunt, gardener for Mrs. John Stuart, Inglewood, made very fine displays of auracarias, palms and other decorative plants "not for competition." The Asylum exhibit of chrysanthemum bloom was especially prominent in the cut flower department. Commercial florists were less numerous than in the preceeding autumn, E. G. Brown and Walter Holt being the only exhibitors. Mr. Holt erected a large and beautiful bank of flowering and decorative plants in the centre of the hall. In addition to cut blooms the Messrs. Brown exhibited several flowering specimens of the lately advertised chenille plant, *Acalypha Sanderii*.

Mr. Ogilvie's display of cosmos, sweet peas, gaillardias and other open air annuals would have surprised some of the horticultural journalists across the border who write at long range about the coldness of the Canadian climate.

Mr. Hurd's cauliflowers, averaging about 12 pounds each, were part of a crop of 14½ tons taken off two acres of land.

Mr. W. Hunt, who filled the somewhat trying position of judge, made the following awards:

AMATEURS—HOUSE PLANTS.

Three plants in flower—R. Grice.

Specimen plant, any kind—1st, Miss Steele; 2nd, H. Bradt; 3rd, Mrs. W. T. Elliott.

Two Begonias—1st, Mrs. Caffery; 2nd, H. A. Eager.

AMATEUR—GREENHOUSE PLANTS.

Four plants in flower—A. Alexander.

Three palms—J. O. McCullough.

Six Chrysanthemums, various and named—A. Alexander.

Display of cut bloom—J. O. McCullough.

PROFESSIONALS.

Ten Chrysanthemums, various and named—1st, S. Aylett; 2nd, W. Holt.

Ten Chrysanthemums, single stemmed—S. Aylett.

Twelve Cut Chrysanthemums, six varieties—1st, E. G. Brown; 2nd, S. Aylett.

Carnation Bloom—1st, E. G. Brown; 2nd, W. Holt.

New or Rare Plants in Flower—E. G. Brown.

FRUIT.

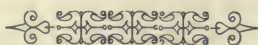
Collection of Grapes grown in open air—1st, J. Gardiner; 2nd, Rev. A. McLaren.

Collection of Apples—W. Wilson.

Collection of Pears—1st, Rev. A. McLaren; 2nd, W. Wilson.

Collection of Cauliflowers—W. Hurd.

LONDON.—The *Advertiser* gives the following notice of a new Horticultural Society that has just been formed in that city: It seems an anomaly that a city so distinguished as London is for the beauty of its tree-lined streets and the lawns and gardens of its residents should be destitute of any organization for the encouragement of flower cultivation. It is satisfactory to know that this condition of things is about to be remedied by the formation of an horticultural society in affiliation with the Fruit-Growers Association of Ontario, and in accordance with the act of the legislature of 1895, authorizing the formation of such societies, and prescribing the regulations by which they are to be governed. At a recent meeting of the Entomological Society the subject was brought forward by Mr. Beall, a delegate sent for the purpose, and a small committee was formed to canvas for members and to arrange for organization if successful. It consisted of Mr. J. A. Balkwill, Rev. Dr. Bethune, Mr. J. H. Bowman and Mr. W. E. Saunders. The act requires that their should be at least fifty members, subscribing \$1 each, and the names had to be obtained by Thursday, 21st, and sent in to the Department of Agriculture. With the assistance of Mr. J. Paine, the committee were entirely successful, and had procured no less than 73 names by that afternoon, and others have been obtained since. By the terms of the act the first meeting for the election of officers and the organization of the society must be held at 7.30 p. m. on Wednesday, Jan. 10. The lecture-room in the Y. M. C. A. building has been secured, and it is hoped that there will be a large attendance. Each member receives the illustrated monthly magazine, the Canadian Horticulturist, and a share in the semi-annual distributions of bulbs and plants. It is proposed to hold a series of flower shows during the summer, and occasional public meetings, at which addresses will be given on suitable subjects. Anyone wishing to join should apply to any of the above-named gentlemen, who will gladly give all necessary information.



QUESTION DRAWER.

Grafting Grape Vines.

SIR,—I have an old and very vigorous Isabella grape vine which, owing to the shortness of our seasons, rarely ripens its fruit.

Can another and earlier variety of grape be grafted into the vine? If so, kindly explain how this can best be done.

GEO. THOMSON.

Wolfville, N. S.

The Isabella is an old variety which ripens late, and even in the Niagara district is often caught with frost before it is ripe. If our correspondent would graft his vines with Worden for black, Lady for white and Lindley for red he would get better matured fruit. We quote from a previous number of our journal giving instructions on grafting the grape.

Grafting grape vines is quite essential in vineyards where old or worthless varieties have by accident been raised. In a very short time the worthless vines can be made to produce an abundance of superior grapes. Grafting yields many other results that must be considered by every owner of vines. In testing new varieties of grapes the easiest and quickest way to do it is to graft them on the old vines. The new scions can be made to fruit the first year, and by the second year a good crop can be obtained. Many varieties that cannot be produced very readily from cuttings, will grow rapidly and successfully when grafted on to old vines. When properly performed the grafter's art can be made to increase the fruitfulness of the vines. Finally, and not the least important of all the benefits derived from grafting, this has been found to be the only successful way of fighting the phylloxera in California.

The method of grafting grape vines should be about the same in all localities, but the time of year best suited for the work naturally differ. Usually the spring of the year, from the first of April to the first of May, is the most suitable period for this work. The sap of the vines

should be in rapid motion at the grafting so that the union will be made at once. The best wood of last season's growth should be selected for the scions. The cuttings should be selected early in the season, and then be buried in bundles until needed for grafting. Frost will injure them, and they should be perfectly free from all exposure to it. The scions should be about the size of a lead pencil, short-jointed, firm and of well-ripened wood.



FIG. 1732
GRAFTED VINE.

The grafting is usually done at or near the surface where the vigor of the old vines is the greatest. Cut the stock off square at about one inch and a half above the joint, or half way between two joints. If the stock is a large one make a slight split in it with the knife or chisel, press a wedge down to pry it open, and then insert a scion on each side. The scions must also be cut to a sloping point just below an eye. Push the scions down firmly, but be sure to make the bark of the scion and stock meet. When the wedge is withdrawn the bark of the two should meet firmly together, and if they do not the grafting is not a success.

If the grafting is properly done, and the union made perfect, no bandaging is necessary. This is only an excuse to cover up poor workmanship. Some light earth should be pressed firmly into the split, and all around where there is any opening. This dry earth will prevent the graft from drying out. If there is any doubt about the work, a bandage of cloth and dirt after the old style can be wound around the graft. To make graftings more successful, it is well to cultivate the stocks carefully before so that a vigorous growth will be had at the time of grafting. The scions should also be strong, well-selected

twigs, taken only from good stock that will produce a thrifty growth.

Pear Trees Not Bearing Fruit.

SIR,—I have two pear trees, a Sheldon and a Beurre Hardy, which are in a thriving condition only the fruit does not come to perfection. It comes to about quarter size and then stops growth. I have other trees beside them which do all right. I have been advised to take away the earth about the trunk and put in about two bushels of hard wood ashes.

JAS. WEIR, 243 Emerald St., Hamilton.

A definite answer cannot be given without seeing the trees. Generally speaking small sized and knotted fruit grows on trees that are somewhat stunted in growth, and any treatment that would tend to restore vigor should correct the evil. We would advise a severe cutting back, a thorough cultivation of the soil five or six feet every way from the trunks and digging in it good rotten stable manure. Fresh hardwood ashes applied in contact with the trunk would be injurious; if applied, it should be sown over the surface of the ground.

Latania (Palm) Failing.

SIR,—I have a palm that I prize very highly, and very much fear I am going to lose. The leaves seem to dry and wither. I found a few earth worms in the soil. It is a Latania Borbonica, about eight years old. Any directions for its restoration to health will be thankfully received.

G. PARKER, Stirling.

From the particulars given of the condition of the Palm, Latania Borbonica, referred to in the above question, I should suppose that imperfect drainage or sour soil is probably the cause of the trouble, as either coal gas or excessive dryness of the roots, unless of a very severe nature, would not cause the whole of the leaves to dry and wither as described. The fact of wire worms being found in the soil also indicates imperfect drainage, and consequently there is no root action to sustain growth.

I would advise repotting the plant at once into a pot one, or perhaps two sizes smaller than the plant is in at present, the size of the pot must depend on the amount of healthy roots the plant has; before repotting shake all the old soil

away from the roots, and cut away dead or any badly withered foliage, as well as all rotten or decayed roots, and repot into a compost made up of two parts of well rotted loamy sod, well mixed with one part of clean rinse sand, or better still, lake sand, and one part of well rotted leaf soil; use plenty of drainage at the bottom of the pot, pieces of broken flower pots being best for that purpose, over this put some pieces of coarse fibry around the roots; when potting press the soil firmly around the roots and give sufficient water to well moisten all the soil in the pot. Water must be given sparingly afterwards, until root action has well commenced, and only give water then when the soil appears dry on the top; when water is given, give sufficient water to well moisten all the soil, but don't keep the soil saturated all the time, as over watering is quite as injurious as insufficient watering, especially when there is very little root action to absorb the excess of moisture.

WM. HUNT, Hamilton.

Brugmansia Arborea.

SIR,—Will you kindly tell me how to grow Brugmansia arborea? I received a fine plant from Steele, Briggs Co. last spring, but since then it done no good. It puts out new leaves but they turn yellow and drop off, and the stock does not seem to grow. It is in good rich soil now.

P. S. HUSBAND, Oakville.

Brugmansia arborea belongs to the shrubby class of Brugmansias or Daturas; they are easily propagated from the young growth in spring or early summer. Cuttings of young growth with a small thin piece of the old wood attached to the base of the cutting (called a heel), are best if obtainable, these root readily if inserted about two inches deep in sand, three or four cuttings in a four inch pot, and kept in a window or hot bed, in a temperature of about 65°, keeping them shaded from hot sun for a few days. When rooted they can be potted singly into four inch pots in loamy soil with a good mixture of sand and leaf soil added; they will require liberal treatment during the summer, repotting them into pots fully two sizes larger each time, a good rich loamy soil, without sand or leaf soil, will suit them at this stage. When the plants

have attained a height necessary to form a plant of the height required, say two feet, the top can be pinched out which causes the plant to branch out and form a shapely plant. Plenty of water and a little liquid manure while growing in summer will help the plants considerably. Water can be gradually withheld in the autumn when the leaves show signs of decay, when the plants can be placed in a cool dry place, in a temperature of about 45°; very little, if any, water being required during the winter. In the spring the plants can be taken out, and some old earth taken from among the roots, repotted into the same, or perhaps a larger sized pot, as these plants require plenty of root room, a twelve inch pot or a small tub being none too large for a good healthy specimen; after repotting, water well once, introduce the plant into a higher temperature, and when established give plenty of water as before recommended. The plants will benefit if the young growth is pruned back in the fall, when the plants are dormant, to within a few buds of the older growth.

WM. HUNT, Hamilton.

Glen's Arborine.

SIR,—In the interests of fruit growers about here, I want to know whether Glen's Arborine is better than a mixture of soft soap and washing soda to prevent the round headed borer entering the trunk of trees? Also will it prevent sun scald, a trouble very common here? A great many agents are about selling this article.

W. J. WILSON, Castleton, Ont.

Glen's "Arborine" has never come under our notice. As I am not aware of its composition, it is impossible to give an opinion as to its relative efficacy compared with the mixture of soft soap and washing soda you refer to. If you can send me any particulars respecting this material, it might be possible to give you information on this subject. I might add that the substance sold under such and similar trade names can scarcely be more effective than the mixtures made from the authorized formulæ, and are frequently if not always to be found more expensive.

FRANK K. SHUTT.

Chemist, Experimental Farms, Ottawa.

Nut Grass.

SIR,—Please inform me the best way to get rid of nut grass, and oblige

A. E. PARK, Cornwall.

Nut Grass (*Cyperus Esculentus*.)

In the common name of this plant we have a misnomer which is somewhat misleading and confusing. It would lead us to infer that this plant was a grass whereas, as can be seen from the botanical name, it really is a sedge. Its genuine name *Cyperus*, has some reference to Venus, the goddess of love. This form is not identical with the "Nut Grass" of the Southern



Nut-grass. showing the tubers.

FIG. 1733.

States, *Cyperus rotundus*, which is widely distributed throughout Europe and has been introduced to the various parts probably through ballast. Nut grass is usually found in low wet areas, and upon underdraining these lands, for the purpose of bringing them under cultivation, great difficulty is frequently experienced in eradicating it. Propagation is effected chiefly by means of underground stems, which bear numerous tubers about half-inch in length. These send up stems to the surface.

Any mode of eradication which will prove effective in the case of Canada thistle or twitch grass will prove valuable in getting rid of this pest. The underground tubers must be starved out. If so desired hoed crops might be grown, but in such cases the cultivation should be so thorough as not to allow any of the plants to show above the surface.



FIG. 1734. NUT GRASS.

The following treatment is recommended: Apply a heavy coating of manure and drill in rape. Cultivate the rape thoroughly. Rib the land up in the fall as the exposure to the frost will greatly assist in riddling a field of this pest. The rape makes excellent pasture and will assist in smothering the nut grass. Hogs are fond of the tubers. PROF. DOHERTY, O.A.C., Guelph.

Crab Claw Cactus.

Please give the botanical name of the Crab Cactus or Lobster Cactus, and also the name of the Cactus on which it should be grafted for best success.
H. C. NORWICH.

The botanical name of Crab's Claw Cactus is *Epiphyllum*, and the principal variety is *Epiphyllum truncatum*. They are easily grafted on stems of *Cereus Columbrinus* about two feet high. *Periskia* stock is also used with great success. Either stock may be purchased at about 20 cents each.

Cuttings for Top Grafting.

SIR,—I have bought a few Wealthy apple trees to arrive in spring. I shall cut them back before planting and I want to know if I can use the cuttings to top graft other trees. I will also plant strawberries, raspberries, black and red currants and gooseberries, all for market. What would you advise me to plant?

Yes, the scions cut from the mature portions of last summer's growth will be excellent for top grafting other trees. As to varieties of strawberries, there are so many new ones every year it is difficult to advise. The writer thinks very highly of Clyde, Woolverton, Saunders and Haverland. Of raspberries, we plant at Maplehurst only Cuthbert and Marlboro for market; of black currants, Lee's Prolific, and Saunders; of red currants, Cherry and Fay. For a full description of these fruits see *Fruits of Ontario* for 1898.

Cherries.

SIR,—I would be obliged for a list of cherries for profit. I want to plant about 175 and have now 50 Richmond and Montmorency. My soil is clay loam, well drained, and situation favorable for early ripening.
A. H. WANE, Beamsville.

In a section where the sweet cherries grow it is well to plant with a view to covering the season with a few choice varieties. A good list for this purpose would be Early Purple, Governor Wood, Cleveland, Elton, Black Tartarian, Knight's Early Black, Napoleon Bigarreau, Mezel, Elkhorn and Windsor. These are named in order of ripening. Of the sour cherries a good list is May Duke, Richmond, Olivet, Hortense, Montmorency and English Morello.

Open Letters.

A New and Valuable Forage Plant.

SIR,—There is another most marvellous forage, dry feed and fertilizing plant which is grown largely in the south, of which I have never seen mention in your valuable paper, and which I believe is well adapted to the central and northern parts as well as to the south. After the Florida velvet bean and the cow pea in the south, this is next in general value as an all-round green or dry feed and fertilizer. I refer to what is known as the "Beggar Weed," the botanical name of which is "Desmodium."

From its name you must not infer that it is a noxious weed, but on the contrary there is nothing grown in the nature of grass or forage of any kind that is eaten in its green or dry state by all stock on the farm with more relish and greediness than this.

The seed in appearance resembles that of clover, and is about the same in size, and it will require for seeding purposes ten to twelve pounds to the acre. To grow a crop successfully, first fit your ground nicely early in spring, harrowing down well before sowing, so that seed may be scattered evenly, thus getting a good even stand on the ground, after which sow your seed broadcast, then harrow again, covering well. If your seed takes nicely, your field will soon take on a beautiful green, as it is an exceedingly rapid grower. Or, another way, you can sow seed in with your oat crop and harrow, or may sow broadcast in corn and cover at last plowing. The latter plan will do as well if wanted for pasture, but if to be cut up for dry feed the other plan is better.

If you want to use your growing crop for pasture, I would not turn on until growth is nearly waist high and after heading process sets in, as at that stage the lateral stems are well developed with leaves and seed formation. If you wish to cut the crop to cure as a dry feed, I would cut it a little before it reaches the stage above described, as by so doing you can, in five or six weeks time, cut another crop from the same ground from new growth offshoots from the original plants, as usually after the second crop is cut a sufficient growth is made to afford you an excellent fall pasture.

To cut this crop you can use a scythe or mower as you like, as in its new and tender state it cuts as easily as timothy or other grass. To cure it, treat it the same as other hay. Should you wish to use the crop to enrich the land, you can turn the second growth under for fertilizer, which may be done in fall or spring as you like. If you want to secure a seed crop, cut growth first time when about thirty inches high, at which stage it makes an excellent dry feed, after which do not disturb it again until it has attained its full growth of from five to eight feet, and matured its seed. If your crop is a good one, it will stand so thick on the ground that you can scarcely walk through it and will reach away above your head.

After the ripened seed is secured in the fall, the dry leaves by this time having fallen off may be

turned under, together with dry stalks, all of which will make you a most valuable fertilizer.

In the south a fair crop may be secured the second and often the third year with re-seeding, but this plan I would not advise in the colder sections, for fear of winter kill.

While this plant is a grand success in Florida and the other Southern states, I do not regard it at all as tropical, and believe it will thrive and do well where other forage crops will grow. It being such a wonderful success in the South, and so valuable for all purposes, I think that farmers everywhere will make no mistake by giving it a trial.

If further information is wanted by your readers if they will enclose stamp I will cheerfully reply.

CAPT. E. A. WILSON.

Fraudulent Packing.

In my letter, which you published last month, there is one expression the printer made which sounds quite unconnected, "of course a brand is a brand by law" was written "of course a barrel is a barrel by law." The letter was not intended for the press, but as you have used it perhaps you will give me not only space to correct the error but also to give the cause of its being written, viz:

I bought a barrel of apples; the barrel was labeled "Snows." When opened they showed poor sample of Ribston Pippins. After about two gallons were removed they turned into Holland Pippins, and a very bad sample at that. There was not a really sound apple in the barrel, and to add to the trouble they were re-packed apples sold by the Fruit Auction Company of this city. We have no trouble about coal oil, why should we have about fruit?

G. H. FAWCETT.

Fraudulent Packing.

SIR,—I enclose you some newspaper cuttings about apple packing. In addition to old boots and kindling wood we have found turnips and pumpkins. Now, how to put a stop to this is the thing to get at. We are of opinion that it can only be done by having every barrel so marked that it can be traced to the place and to the man who packed it, and make him liable for the damage. This could be done by securely tacking a card on the end of the barrel giving the full address of the grower, number of lot, township and county, also the name of the packer if packed by any other than the grower. This same rule could be applied to packages in baskets, such as plants, berries, etc., by tying the label to the package. We think fruit growers and dealers in fruit should urge on the government the desirability of passing a law to in some way meet these cases.

We should be pleased to see the rules of the Ontario Fruit Growers Association for grading fruit.

DR. A. BOWLBY, Waterford.

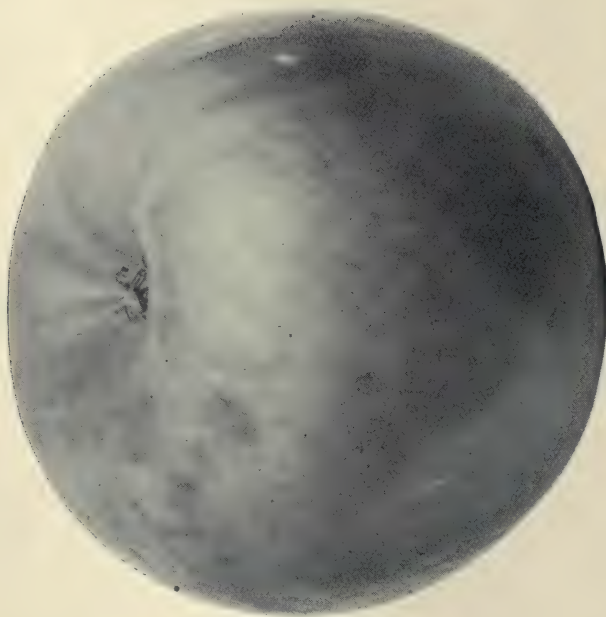


FIG. 1735.

THE LOUISE.

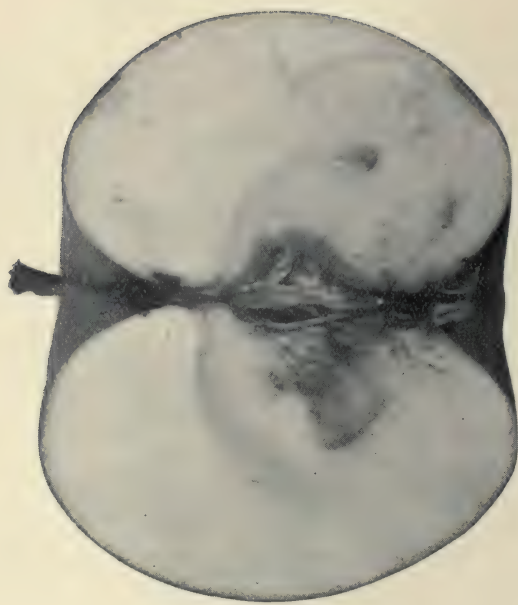


FIG. 1736.

Photo by Miss Brodie.

THE CANADIAN HORTICULTURIST

Vol 23

1900

No 2

※ ※ FEBRUARY ※ ※

APPLES OF CANADIAN ORIGIN.

WHEN we speak of apples of Canadian origin we touch upon a field of study most inviting to the pomologist and of work heavy with possibilities for the hybridist.

It is now well proven that the fruits of one continent, though of the most exceptional merit, are by no means those best adapted for out of door cultivation in another. The grapes of the Continent of Europe, though of fine size and quality, do not ripen well in Canada, and in our climate are sadly subject to mildew; the apples of Russia, from which so much was expected, are unsuited to our country with a few exceptions, and of the apples of England only a half dozen or so are counted valuable here. Even the old Ribston, so highly valued in England, lacks vigor in Canada and will soon be omitted from desirable varieties in Canadian catalogues.

But we are fortunate in having some varieties of apples, as well as other fruits, which have originated on Canadian soil and which show the possibilities before us. Among these we may mention the Ontario,

which originated at Paris, Ontario, and bids fair to be placed among the best export varieties; the Crimson Pippin, which originated near Prescott, and though the orchard of this variety, planted by the originator, Mr. Harold Jones, is almost the only case in which it has been tested, the result is certainly highly in its favor as a dessert apple for any market; the McIntosh Red and the Princess Louise.

MCINTOSH, as we may call it for brevity's sake, has been prominently before us for some years. The wonderful beauty and fine quality of this apple at once gave this variety a claim to the front rank as a dessert apple. Its season is about the same as the Fameuse, it is larger and more showy, and on account of its thick skin an excellent shipper. Surely, thought everyone in 1892, this is the dessert apple above all others for us to grow in Canada. Mr. R. A. Shepherd, of Montreal, wrote us that year that the McIntosh Red was the most beautiful as well as the most delicious apple he had seen offered for sale that season. He had tried it eight years and believed it could be grown as suc-



FIG. 1737. MCINTOSH.

cessfully at Montreal as the Fameuse, and perhaps more successfully, and therefore he recommended its cultivation in the province of Quebec. The same year Mr. George Bunbury, of Oakville, wrote us: "If we can grow such lovely apples as the McIntosh Red shown at Hamilton I think we ought to do so, as I believe such apples will always fetch fancy prices in England, and I don't think I ever saw such a perfect looking red apple as the McIntosh Red."

But we must be fair and add that this fine variety has the serious fault of being subject to apple scab, which renders constant spraying necessary and much increases the cost of raising fine samples. Mr. John Craig, in 1893, also reported that while the wood was hardy he found it somewhat tender at Ottawa.

The PRINCESS LOUISE has

been before the public since 1879, when it was first shown before the Ontario Fruit Growers' Association by the writer as the Woolverton, but afterwards named Princess Louise after H. R. H. the Marchioness of Lorne, on account of its great beauty. The original tree still stands on the "Mountain" side at Maplehurst, Grimsby, and singularly enough the fruit borne by the original seedling tree has not been equalled in beauty by the fruit borne on trees propagated from it, although of the same very excellent flavor.

In September number, 1888, we gave a very good colored plate of this apple, and now we give as a frontispiece an excellent photograph, taken in 1899 by our special artist, Miss Brodie. We also give a technical description of the apple, which may be of service in identification, as we find that in some nurserymen's collections



FIG. 1738. MCINTOSH.

THE CARE OF SHADE TREES.

it has been mixed with McIntosh Red and the varieties have been confused.

PRINCESS LOUISE.

An apple of great value for the home garden as a choice dessert variety, but probably not sufficiently productive to be profitable in the commercial orchard unless it should command a higher price than other apples on account of its excellence.

TREE, of slender habit, fairly vigorous, hardy, moderately productive.

FRUIT roundish, averaging $2\frac{3}{4}$ by $2\frac{1}{4}$ inches in length and breadth respectively; skin greenish yellow, of bright waxy lustre, with cheek of clear, bright carmine; stalk stout, $\frac{3}{4}$ of an inch long, in a narrow, moderately deep cavity; calyx half open, in a broad, shallow, slightly plaited basin.

FLESH, pure white, texture tender, fine, somewhat crisp, juicy with rich aromatic flavor.

SEASON, November to February.

QUALITY, dessert, best; cooking, good.

VALUE, home market, very good; foreign market, very good.

THE CARE OF SHADE TREES.

MANY inquiries were made this year regarding the treatment of shade trees which were showing signs of lack of vitality. In some cases the cause of the unhealthy condition of the trees was plainly due to insects, in other cases to fungi, but most frequently the cause was due to purely physiological conditions, such as unfavorable conditions of the soil, or atmosphere.

The towns and cities of Ontario can point with pride to their beautiful avenues or trees which not only furnish a grateful shade from the sun's rays during the hot days of summer, and cause refreshing breezes to blow along the pavements, but also give shelter from the winds and storms of winter. The larger the town or city the more attractive these trees become by way of contrast with the long walls of naked brick and stone.

But the value of shade trees lies not solely in the shelter and shade they furnish, they conduce to the healthiness, and their value in this connection can scarcely be estimated.

That many of these valuable trees are dying, or are in an unhealthy condition due to physiological conditions, is a fact that requires attention on the part of their owners, and it is the purpose of this article to point out the remedies that may be applied to reinvigorate these trees, and the causes which bring about these undesirable conditions.

1. Trees, like animals, require food, and if the supply gives out they must inevitably starve. One of the chief causes for the unhealthy, dying condition of so many trees is this lack of food supply.

It is true that a tree makes use of the almost inexhaustible reservoir of carbonic acid gas in the atmosphere, and the water in the soil, but it should not be forgotten that a tree requires inorganic food which is absorbed by the roots. A farmer does not expect a crop from soil which contains no nourishment, but, somehow or other, many persons entertain the very erroneous idea that a tree ought to grow and thrive for years upon the food which happens to be in the soil in the immediate neighborhood of the roots.

Very frequently when a tree is planted the earth which has been thrown out in making the hole is thrown back again and packed about the roots. The amount of food in such a case will not suffice for any length of time. Sometimes the tree will live and thrive for several years; then it is because the soil has been richer than usual. Every year the ground for a yard or more should be spaded deeply, and a dressing of well-rotted manure or compost applied. In doing so a constant supply of food will be maintained, and the tree will grow and thrive.

2. A second cause for the disease of vitality in many shade trees is the lack of per-

fect circulation of air in the soil. The vital processes in the roots demand a supply of oxygen, and if this gas is excluded the roots die of asphyxia, or *root rot*. Oxygen is required, not only for growth, but also for the formation of reserve materials. A good florist knows how to provide for drainage in potted plants; he knows that a hard clay bottom is unsuitable. *Too much water* and *soil of too close a texture* will prevent the circulation among the roots and root-hairs, and a free interchange of the atmospheric and soil gases. The best foresters advocate drainage for every tree. Too often the water which is given the tree lodges in the hole made for the tree, so that the soil becomes saturated and aeration is prevented.

When trees are planted along the sides of cement pavements and paved streets as is the case in many of our towns and cities, they



FIG. 1740. MAPLE TREE SUFFERING FROM
STAG HEAD

(Suffering from Lack of Proper Nourishment.)

suffer from an imperfect supply of air among the roots. The hard impervious pavement prevents not only a proper supply of oxygen, but also proper evaporation from the soil beneath.

A common form of disease arising from a diminution of the supplies of food and water is *Stag Head*, "when the top branches become leafless, dry off and remain as dry sticks, like antlers projecting above the foliage." The lower branches remain green, but make but little growth.

In the treatment of *Stag Head* the sod should be removed from a space two or three feet in radius of about the tree. This circular area should be frequently stirred by the spade and kept raked, as this process will tend to promote aeration; but unless provision has been made for proper drainage



FIG. 1739. MAPLE TREE AFFECTED WITH
STAG HEAD.

(Suffering from Lack of Proper Drainage.)

when the tree is planted, aeration will be perceptibly checked whenever a prolonged wet period occurs. The young rootlets decay, the tree is weakened and becomes more liable to attacks of fungi, which prey upon the roots.

3. Another cause for the death of many trees is *Sun Scald*, which produces a wilting of the tissues by a too rapid evaporation from the leaves. The tender young shoots are very liable to injury from such a source, especially if they are subjected to a hot sun after a period of rapid growth in moist weather. The edges of the leaves turn reddish yellow, wilt and dry up.

4. A cause which produces practically the same results as Sun Scald is known as *Winter Blight*. The tissues wilt owing to too rapid evaporation during fine, warm days in winter, when the soil about the roots is frozen, or when dry, cold winds prevail.

It is very difficult to provide remedial treatment for Sun Scald and Winter Blight. Perhaps a liberal mulching with manure or straw would be as efficacious a remedy as any that could be devised.

5. Other causes occasionally produce

serious results, but only under peculiar circumstances. Sometimes the air of cities and towns becomes poisoned with harmful gases to such an extent that whole avenues of trees are seriously affected. There is of course no remedy available in such a case.

A few words may be said as to the treatment of old trees which are showing signs of lack of vitality. Growth may often be stimulated by assisting nature when the roots have become sluggish. The branches should be pruned so that the demand upon the roots may not be exceeded by the transpiration from the leaves. The turf, moreover, should be removed and the soil given a top dressing of compact earth before replacing the sods, so as to allow the nutrient salts to be washed down to the rootlets by the rain.

All decaying patches or holes should be mended by clearing off all rotten wood, and the place finally closed up with pitch or coal tar to prevent the entrance of fungi.

My second article will deal with the protection of shade trees from the attacks of insects and fungi.

O. A. C., Guelph. W. LOCHHEAD.

WARM AND COLD WATER FOR PLANTS.

SOME of the experiment stations have been trying the prolonged effect on plants of water at various temperatures, from freezing to 100 degrees. The tests have been made at the Wisconsin and Ohio stations during the last two years on a variety of plants, including geraniums, coleus, potatoes, beans, etc., and the conclusion is reached that between 45 and 75 degrees, the temperatures mostly available in practice, no apparent difference in effect is caused with any of the plants tested. Water at 32 to 34 degrees grew healthy, short-jointed geraniums, but sometimes affected the more sensitive Coleus unfavorably. At 100 degrees a weak and spindling growth was caused in almost every

instance. The practical point is that where the available water supply in a garden or greenhouse is of a temperature not much below 40 degrees, it will hardly pay to use artificial means to warm it. Cold water, indeed, seems to act as a tonic for many cultivated plants, and glasshouse growers are more and more coming to rely on forcible spraying with cold water to clear growing plants of insect pests. They find that the soil is not appreciably chilled by a reasonable amount of cold water. There are times, however, when the immersion of pot plants kept in a chilly room in warm water is very beneficial, as it renders the fertilizing matter in the soil more available. R. N. Y.



FINE NATIVE ELMS NEAR TORONTO.

LANDSCAPE GARDENING—II.

THE site being secured, the designer must become thoroughly familiar with the nature of the ground and character of the surroundings and the requirements of the client; then, if he has the genius to make his work an artistic success, he will be able to outline clearly in his mind a picture of the completed place, which is in harmony with the character of the ground and its surroundings. His conception will be as clear as that of the artist painter. With the artist it is one thing to conceive a picture and quite another to transfer it successfully to a canvas, and so it is with the landscape architect. There must be with the power of designing a very broad practical knowledge of methods and material available to reproduce this picture, and a

skill in making plans for, and in directing work, so that the proper methods may be used and the material so combined that the desired result will be secured. With all his skill the landscape architect must often wait for years to see his picture realized, while the artist may reproduce his in days.

The success of a place depends very much upon the cooperation of the building architect. By working together a result may be secured which would oftentimes be impossible, if they worked independently. Much depends upon a proper fitting of the house to the grounds—in character, outline and elevation—by the architect, and a proper arrangement of roads, walks, and vegetation with reference to the house, by the landscape architect. You might as well expect two

artists, one a painter of buildings and the other of landscapes, to paint pictures independently of each other on different canvases and then to trim them up and fit them together successfully. Not only should the character of the ground be considered in determining the character of the house, but also the character of the surroundings. I know of a modern cottage, constructed largely of rough bowlders with dark-stained and irregular gables and projections, all covered with a growth of vines. It is standing on an avenue surrounded on all sides by stately mansions of cut stone, brick and wood. It reminds me of a countryman in his old clothes at a city ball. He would be a very pleasing and picturesque object on the farm among his cattle and his help—the controlling feature of the scene—but he would look out of place among dress suits, and so did this house among its neighbors.

The character of the place having been determined by the landscape architect, or with his assistance, or it may be by the owner (for the designs of many places have been made and carried out by the owners with most satisfactory results), the location of the house, arrangement of grounds, and construction is to be considered. In these matters it is useless to attempt to establish rules, for it is seldom that two places can be treated exactly alike, even if it were desirable that they should be, and there are no two families with the same requirements. General principles may be stated that can be adapted to varying circumstances. The house will be located with reference to views, exposure, the subdivision of the ground, surrounding buildings and approaches, and this can be properly determined only by a comprehensive study of all these points. A well drained location will be secured, care being taken to avoid a site over, or in the line of, springs. In a house to be occupied in winter a warm exposure for the living room is desirable, but if to be occupied only

in summer the cool side of the house should be the living side.

Convenient and comfortable approaches are more important than fine views from the windows. One soon tires of a fine view, if it is secured at the expense of a daily climb up a long hill or long flight of stairs. A fine view is to be sought for and is an invaluable possession, but it will be fully as much appreciated if reserved for occasional enjoyment from a comfortable outlook above the house site, if it is not practicable to secure it from the house and at the same time secure good approaches. In any event, the question of approach will largely govern the location of the house. Too often the landscape architect is only called in to solve the problem of how to get to the house after it is built, this important matter never having been considered up to that time, and then appearing impossible. Many times a very expensive or very awkward, and always unsatisfactory makeshift, is the only way out of the difficulty. The position of the house will depend upon the use the ground is to be put to, and care must be taken that it does not encroach upon areas required for other purposes. An example I have in mind is that of a village lot in the centre of which a house was placed. The proprietor wanted a lawn tennis court, and could have secured it at small expense if the house had been located a few feet to one side from where it was. He had to go without it, as other parts of the ground were required for other purposes.

The subdivisions of a small or medium sized lot, outside of the approaches and yards, would ordinarily be the lawn, a flat surface for tennis or other games, which may be a part of the lawn, the flower garden, and the vegetable garden, of which the flower garden may be a part. The lawn should be the broadest piece of unbroken surface on the place; its position and size would be governed by the shape of the lot,

the amount of land necessary for other purposes, the direction of the view, and the location of approaches. Ordinarily the tennis court would be located on flat land, or land that could be made so readily; on the lawn, or near it, if a grass court; if a dirt court, screened from it by planting. The flower garden should be readily accessible from the house, out of the line of an important view. Its location and character could, and probably would, be varied to suit local circumstances more than any other subdivision of the ground. The vegetable garden would naturally take up its quarters at the back of the buildings near the stable and sheds, and its relative importance will be governed by the desires and tastes of the owner. All

this applies to the village lot which is all to be used for home grounds, but the same principles would apply to the home grounds which should be reserved about the farm buildings or about the house of any large estate in the country. There should be a distinct division between this, the home ground, which would be nicely kept, and the cultivated, mowed or grazing fields of the farm. It may be a fence or wall bordered by shrubbery, to one side of which would come the lawn and on the other the farm, or it may be a retaining or ha-ha wall with the lawn sloping from the house to it, and with planting along its borders above the wall.

Boston, Mass.

W. H. MANNING.

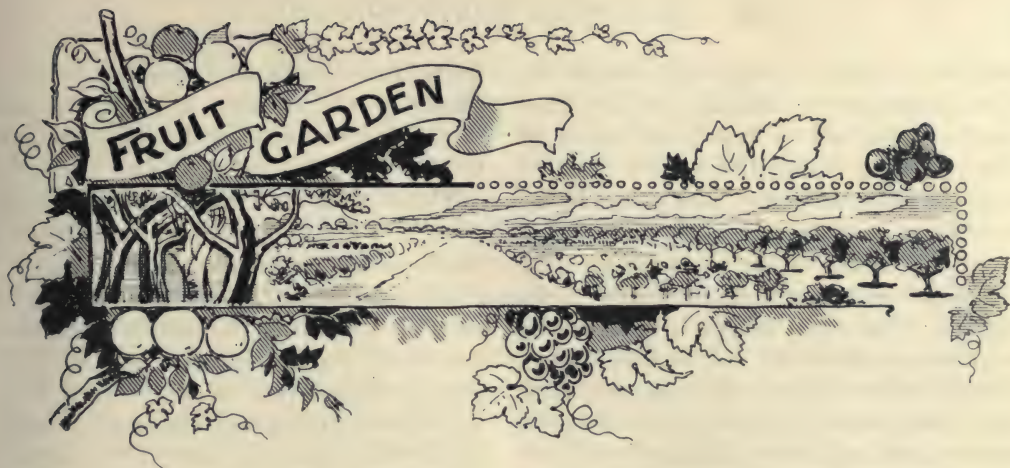
(To be Continued.)

THE WINDOW GARDEN.

WASH THE PLANT'S FACE.—Just now, in the depths of the winter's gloom, a thrifty window garden is a comfort and joy, though the actual realization in bloom is not likely to be as profuse as later in February, when the greater power of the sun stimulates a rapid growth. But few additions have been made to the list of practicable window plants during late years, except in the more extended use of palms, ferns, rubber trees and decorative plants of this character. Geraniums and Begonias are universally the favorites, and are grown wherever the night temperature of the living rooms can be kept above freezing. The later geraniums are really magnificent improvements, bearing immense blooms of clear and pleasing colors, and are well adapted for window decoration. At this season the endeavor should be to give them all the sunlight possible; every hour counts in increasing vigor of leaf and flower. Keep them well watered.

The dry, hot air of living rooms absorbs the surplus moisture from a pot of growing plants very quickly, and there is less danger of overwatering than is generally appreciated, in case free drainage to the soil has been provided. The foliage, too, should be thoroughly sprayed or sprinkled often enough to keep the plant tolerably free from dust. Dirt and dust on the leaves clog up the breathing pores, and interfere with healthy growth. The window plant often needs a washing just as badly as a boy with a dirty face, and will show a deal more gratitude for it. Managers of amateur greenhouses, on the other hand, are likely to affect the opposite extreme and shower their plants into debility. The air of a small conservatory or glasshouse is easily rendered too damp for the best conditions of plant life during dull weather. Careful and loving observation of the growing plants will soon acquaint one with their peculiarities and desires.

R. N. Y.



FRUIT CULTURE—I.*

General Principles.

CLIMATE, LOCATION AND SITE—One of the first things which determines the success or failure of any particular fruit is the climate question. With great extremes of heat and cold we yet have, through a large part of Ontario, a climate which favors the successful production of most of the fruits belonging to the temperate zone—and fruits of the highest quality. The annual temperature of the different sections of the country will naturally have much to do with the successful production of the different fruits. Occasionally a favorable winter may enable a fruit to be ripened outside its usual northern limit, but the minimum temperature of the average year will determine the question as to whether certain fruits can be profitably grown or not. Thus, where the mercury habitually touches 10° below zero, the successful culture of peaches is practically impossible; where the point ordinarily reached is from 15 to 20° below, the growing of the sweet cherry becomes a doubtful experiment, and so on with other fruits. In each species of fruit, however, there are varieties with exceptionally hardy characteristics, enabling

them to withstand conditions totally fatal to the rest of the species, and it is this fact that makes the choice of varieties an extremely important point for the planter to consider. Then, within a given district there may be locations so favorable as to enjoy immunity from the more severe frosts affecting the surrounding country. The low temperature of the water in the spring will retard the growth of vegetation, and thus enable the effects of spring frosts to be escaped. In the summer the temperature at night will usually be higher on the lands adjacent to a lake, and in the fall the warmer temperature of the water will lengthen the growing season, and less danger from the early autumn frosts exists. Experience has shown that the most favorable sites for orchards are on lands frequently sloping to bodies of water, and always a little elevated above the surrounding country. This is partly because of the influence of the water; partly from the drainage facilities; and partly because of what is known as atmospheric drainage. It is a fact familiar to most people that the colder air is, the heavier it is, and the low flat areas are usually, therefore, the first to

*This article was published in the last report of the Superintendent of Farmers' Institutes for Ontario, and we republish it for the benefit of readers of the "Horticulturist" by the courtesy of the Superintendent.

suffer from frosts. With regard to the aspect or exposure of orchards generally, this much may be said: Near large bodies of water the most favorable exposure is on the slope towards the water. In a district away from water a northern or northwesterly exposure is the best, as the blossoming period is retarded and danger from spring frosts escaped. The slope, however, must not be too pronounced, or too cold and backward. Account must also be taken of prevailing winds, and a few words may be advisable here as to the use of windbreaks.

WINDBREAKS.—The value of windbreaks for the orchard is a much debated question, full of pros. and cons., only a brief summary of the main points will be possible here. The gradual removal of forests in Ontario has rendered the sweep of winds over the farm lands more violent and more noticeable. Winds acquire, to a greater or less degree, the temperature of the area over which they pass, thus modifying the climate of every new district touched. Hence a strong wind from an open body of water will raise the winter temperature of the adjoining land, while wind from a colder area may have a disastrous effect. Wind is a powerful agent in the evaporation of moisture, and, apart from the more rapid evaporation in an open country during the summer, a strong dry wind may have an appreciably bad effect on fruit trees by evaporating the moisture in dormant twigs during winter. The value of a windbreak evidently, therefore, depends on the direction and character of the prevailing winds. Where strong land winds are of frequent occurrence, a windbreak is clearly advisable. To quote from Bailey: "The benefits derived from windbreaks are, lessening of evaporation from soil and plants; protection from cold; lessening of windfalls; lessening of liability to mechanical injuries of trees; retention of snow and leaves; the enabling of trees to grow more erect; lessening of injury from the drying up of small

fruits; retention of sand in certain localities; hastening of maturity of fruits in some cases; encouragement of birds; ornamentation."

The injuries from windbreaks are as follows: "Preventing the free circulation of warm winds and consequent exposure to cold; injuries from insects and fungous diseases; injuries from the encroachment of the windbreak itself; increased liability to late spring frosts in rare cases." This is a clear statement of the advantages and disadvantages of windbreaks, and the evidence is strongly in favor of windbreaks, unless they are unwisely planted so as to exclude warm winds that are often a fruit grower's salvation during a severe winter. The common objection to windbreaks, viz., that they harbor all kinds of bad insects and tend to encourage fungous diseases such as mildew, scab, etc., has some strength, but with the intelligent use of a proper spraying apparatus this objection loses its chief force, and care can also be taken that such trees as are especially infested by injurious insects and fungi are left out of the plantation. As a general rule a mixed windbreak is advisable of two or even three rows. It should usually be not too dense, checking the violence of the wind rather than excluding it altogether. Norway spruce, Austrian and Scotch pines are effective; and amongst the deciduous trees those should be used which are most healthy and thrifty in the locality.

THE SOIL QUESTION.—Having decided as to climate, location and exposure, it would become necessary to consider the matter of soils for fruit, and under this head "drainage" and "tillage" will also be referred to. It may be said in the outset that nearly all soils so far as their mechanical texture is concerned will produce with fair success the various fruits, provided that the necessary conditions of fertility, proper drainage and cultivation are fulfilled. The fulfilling of these conditions, however, becomes a some-

what expensive and laborious matter in some cases. And other things being equal, certain fruits will undoubtedly thrive better on special kinds of soils, and even different varieties of the same species of fruit have their soil predilections. So that it is better to ascertain the nature of the varieties to be planted, if possible, before giving them an uncongenial home. The kinds of soil best adapted for the cherry, the pear and so on will be touched on in the chapters devoted to those fruits. Any man who has decided to plant fruit trees of any kind should at once make up his mind that no matter how good the site, or how valuable the variety, his time and money will inevitably be wasted if his land is not properly drained. Some trees may exist under adverse conditions of this sort, may even partially succeed for a time, but "failure" must be the final word. A porous soil, soils of a sufficient elevation to provide good natural drainage, these with care may give excellent results, but broadly speaking underdraining will always abund-

antly repay its expense in the case of practically all fruits. Amongst the many benefits derived from the proper system of underdraining are the following: The raising of the soil's temperature; the freeing of all surplus water from the subsoil; the liberation of much plant food, which though in the soil otherwise remains inaccessible to the feeding roots; the making of the soil both moister in a time of drouth and drier in time of excessive moisture. On land well drained the root system of the tree is not only vastly more healthy, but the feeding rootlets commence work earlier; the tree makes a more rapid and vigorous growth, and is in a far better position to develop plump sound fruit buds and to ripen its wood for the winter. These are great gains, and under ordinary conditions the orchardist who has once experienced them will not be likely to neglect the underdraining of other lands he intends to plant.

M. BURRELL,

St. Catharines.

(*To be Continued.*)

NUMBER OF TREES ON AN ACRE.

30 feet apart each way	50	10 feet apart each way	435
25 feet apart each way	70	8 feet apart each way	680
20 feet apart each way	110	6 feet apart each way	1210
18 feet apart each way	135	5 feet apart each way	1746
15 feet apart each way	195	4 feet apart each way	2725
12 feet apart each way	300	3 feet apart each way	4840

RULE.—Multiply the distance in feet between the rows by the distance the plants are apart in rows and the product will be the number of square feet for each plant or hill: which, divided into the number of feet in an acre (43,560), will give the number of plants or trees to an acre.



THE USE AND MISUSE OF THE PRUNING KNIFE.



WRITER in "Gardening World" treats upon the above subject, and certainly it is a most seasonable one for us also in Ontario, because during the mild days of early spring the larger part of the pruning of orchard trees is done by our fruit growers. Our English friends are well trained in the art of pruning, and we might learn much from a study of their methods. As a matter of fact many of our fruit growers have no ideal or system; they have a vague notion that the tree has too much wood and must be thinned, and they go to work with saw and axe in the most reckless fashion. Such men are well named "tree butchers," and often do more injury to an orchard than can be remedied in years of patient nursing.

Some orchardists we have met, very carefully cut off the fruit spurs along the main limbs, making them as clean as a boat mast, and about as free from fruit. Others cut out great limbs from the centre causing a forest of sprouts, or from the sides of the trunk making the tree almost inaccessible to a ladder.

Such work is a waste of energy both of tree and man, and we hope our Agricultural Colleges will soon man our farms with men who will have some training, and who will do their work intelligently.

Our orchard trees do carry too much wood, and do need thinning, but it needs to be done with an eye to the symmetry of the tree, and to an even distribution of the fruit. Even a neglected orchard must not be butchered, it must be gradually brought to an ideal condition and not all at once. Large limbs must not be cut, for the wounds will result in hollow trunks, and premature decay. Patiently remove a portion each year until the proper condition is reached; not by removing large central limbs, but by thinning the smaller ones on the outside of the tree head in every part. This is much more laborious than cutting out at the centre, but is much more sensible, because

it is done at the point of growth and productiveness.

The thinning of the fruit may in this way be partly accomplished as well as the thinning of the wood, two objects of equal importance.

Plums and pears are much inclined to grow long sprawling limbs, which should be cut back to form a symmetrical tree; and in the case of pears we always allow a few side shoots along the trunk which may be grown into a new top in case of blight. In case of dwarf we aim at the pyramidal form of the tree which is less inclined to be blown over with the wind, more convenient for fruit gathering, and more symmetrical than any other form.

Peaches should be well cut back every year, and the dead or weak branches cut out of the interior. Too much stress cannot be laid on the importance of all this work in the production of high grade fruit, which is so important just now for success in capturing the British market.

Fraser, the writer above referred to, writes on this subject as follows:

"It would be interesting to know what idea actuates the mind of many of the great army that wields the shears, the hedge-bill the saw, the secateurs and the pruning knife. It may be, and no doubt is, the case that many of them are victims of mistaken notions, like the apprentice who was set to grind the tools in his master's absence one day; and, when asked at night whether he had ground all the tools, replied in the affirmative, except that he had not been able to grind down all the teeth of the big saw. To make a guess at the intentions of some pruners of deciduous trees whose handiworks we have witnessed, one would imagine that they had been sent to give the trees a good hacking; and if so, they carried out their orders to the letter. The jobbing gardener is often blamed for his accomplishments, but he is no doubt a victim of the order to tidy up the place, and give the inmates room to perambulate in the narrow con-

finer of their gardens. Many owners desire to have gardens, yet from lack of knowledge and intimacy with the varying laws of Nature in each individual case of the trees or shrubs, they proceed to work or give orders in such a way as to show an utter lack of sympathy with the subjects in hand.

"We have seen a pear tree on the walls of a house, and one who was supposed to be an experienced hand was set to prune it. Not only was the breast-wood hard cut back but the spurs were cut back too, quite irrespective of whether there was fruit buds below the cut or not. This as a matter of course precluded the possibility of fruit the following season. Quite recently we heard of the good wife of a house taking a fit of gardening in her lord's absence, and pruning the side shoots of the vines hard back to the main rods, and that too while they were yet far from mature. Possibly she had been reading about the installation of the new Adam in the gentle art of gardening, and had felt justified in coming to the support of the new profession. There are those whose conception of pruning is to shear in the bushes equally on all sides, whether evergreen or deciduous, so as to make them as uniform as possible. There is another kind of uniformity that is equally offensive to the eye, and altogether objectionable. This is the practice of pruning large trees all to one uniform shape, not merely that straggling branches may be headed back, to make the trees more compact and symmetrical according to their kind, but to fashion them according to one preconceived ideal. When such trees are leafless they are of ten strongly suggestive of scarecrows. The system of pollarding trees, especially Willows, in wet meadows is so common in the south that many have come to look upon such artificial creations as the right and proper thing. Naturally grown trees are, however, infinitely superior in every way, more graceful, more umbrageous, and more handsome, whether seen from near or from far in the landscape.

"There should always be some object in pruning, though we feel that every wielder of the knife would be ready to affirm that he was guid-

ed by that aim. If the object is that of utility or ornament, the hand must be guided both by reason and taste in the latter case, and at least by reason in the former; otherwise there can be no intelligent pruning. In the case of fruit trees a considerable amount of skill and judgment are necessary to treat each variety of tree according to its natural inclination to produce fruit buds at particular places of the previous year's growth or otherwise. There is a considerable amount of variation even in this respect amongst apples. Trees belonging to other species and genera also require sympathetic treatment, and he cannot be considered a skilled or expert fruit grower who has not carefully studied all these peculiarities.

"Flowering trees and shrubs require equally skilled treatment to secure the best effects they are capable of producing. It may be as well to remember here that sub-tropical effects from foliage are sometimes desired, and that in this case pruning consists chiefly in cutting the branches hard back so as to encourage the development of rampant growth, for upon such the size of the leaves depends. Large leaves, each according to its kind, can only be obtained upon strong young wood, and the pruner is guided accordingly. When he is sent with his ladder, hammer, nails and shreds to prune flowering shrubs upon walls, a task has been set him that is not easily accomplished, if he is to acquit himself properly of the task, unless he has previously been a keen observer of the habits of each respective species. Unless accompanied and closely superintended by a skilled hand, he is apt to overlook the fact that one tree may flower from the wood of the previous season, it may be in the spring, while another may flower on the young wood produced in summer. Should the present time be adopted for the pruning of wall, the wielder of the knife must not prune away the young shoots of *Chimonanthus fragrans*, *Jasminum nudiflorum*, *Forsythia suspensa*, *Prunus triloba*, nor *Ribes speciosum*, as all these flower on the wood made the previous summer. The first two mentioned would have been in flower by this time but for the un-

genial weather. In the warmer and more favored portions of the country this may have taken place. Their pruning must be deferred till flowering is over, after which they may be hard cut back if strong and vigorous. They can then be reduced within proper bounds. In the case of weakly specimens of *Chimonanthus* it is better to leave a sufficiency of wood to cover the nakedness of the walls. The pruning

of *Lonicera sempervirens* and many *Roses* may be accomplished at once if they are perfectly hardy, making allowance for those roses which flower all along the wood of last year on the side shoots of the same. *Lilacs*, *Guelder roses* and *Mock Oranges* should receive the necessary pruning after they have finished flowering in summer."

A SMALL ICEHOUSE.

NOW that we have found how important a feature of a fruit storage house cold air forms, every enterprising fruit grower will be interested in providing means for its production. By and by, when liquid air is a commercial article, no doubt we can do away with frozen water, but in the meantime it is important to lay in a supply of ice and this is usually the best month for storing it. *Dierhold*, in *American Agriculturist*, gives valuable hints intended for a cheap family ice house, but the principles are the same as for a larger one, so we give them place :

"So far as ice is concerned, the best economy is to use it in profusion. Have as much as you want, but cut and store the ice yourself, or buy it at wholesale in winter, when it is cheap. Every family that has room enough out of doors for a small icehouse will save money by building one. It should be as much a part of the establishment as the refrigerator in the kitchen. Ice melts faster in free air than in confined air, faster in water than in confined air and faster in the sun than in the shade. It will melt in any icehouse. It simply melts slowly in a good one and rapidly in a poor one. Reduced to its simple elements the success of an icehouse depends upon site, drainage, ventilation and construction. The best site for a family icehouse is some shady place under a tree, or the north side of a building which is also protected from the wind. Shade is of the first importance and shelter from the wind the next, so, if there is a choice, take the shady place. If a good position cannot be

found, put it anywhere. The melting ice in the house causes a constant flow of water. If the soil on which the house is to stand is sandy or gravelly, and has a gentle slope, there is nothing to do but dig a cellar about two feet deep and fill it with stones. Cover the upper layers with small stones and sand. This will make the floor on which the ice is to rest. The water will escape easily through the sand and stones and there will be no chance for currents of air to flow upward into the house.

The tendency of the air in a badly made icehouse is always to flow through it. Therefore, while there must be drainage, there must also be an absence of inlets for air. If the soil is wet and not easily drained, the surface must be covered two feet thick with stones and the house placed on top of this. If this is done, the sides of the stone work must be made tight with mortar to prevent the entrance of air. If provision must be made for carrying off the water, the pipe must be trapped to prevent the air from entering the pipe and thus getting into the house.


A well drained foundation having been prepared, a wooden sill must be laid, on which the walls are to rest. On this sill will rest the uprights. These may be simply planks eight inches wide and two inches thick. They may be placed at intervals on the sill and held in place by a stringpiece on top. On the outside of the uprights may be nailed boards with battens or clapboards. On the inside they are simply boarded up with cheap stuff. The whole aim is to make a hollow wall. The space between

the outside and inside boarding must be filled with tanbark, sawdust or rough chaff of any kind. Upon the walls place a common pitch roof, boarded and battened or shingled. It must be rain tight, but must not be air-tight. There should be an opening at the ends, or a hood or ventilator, to permit a free circulation of air through the upper part of the house. The door should have double walls filled with sawdust. These, in brief, are the conditions: Perfect drainage, double walls filled with sawdust, no entrance for air below and free ventilation above.

The ice should be laid on a foot of sawdust

or chaff and a space of 12 in. all around between the ice and the wall should be filled with sawdust, as well as all the cracks between the blocks. When it is all in the house, sawdust is spread 2 feet deep on top of the ice. The cost of an ice-house must vary with the price of labor and materials. A house 12 ft. square and 10 ft. high will hold enough ice for one family and certainly will not cost much money to build. An icehouse should always be painted white, and if convenient it should be covered with vines, which will partly neutralize the heat of the sun's rays."

THE ANJOU PEAR.

NE of the most satisfactory export pears thus far tried is the Anjou. Its large size, attractive yellow color when ripe, its fine juicy texture and excellent quality make it a valuable late fall pear in any market, while its shipping qualities make it most valuable for distant markets. As a standard it is not very productive, and the fruit is much smaller than when grown as a dwarf. Whitcomb in "Country Gentleman" gives his experience on this point as follows:

"Among a number of hundred which we have in bearing, and which were set in the '70s, there are a few which correspond to the views of the leading orchardists at the present time; and that is, that better results follow if planted on quince stock. We have taken particular notice of the fact, even before and since the ravages of the pear psylla, that these trees have proved more prolific, and as a rule are much more certain of being annual bearers.

These trees, if planted on quince, must be planted very deep in order that the young stock, after becoming well rooted, will soon begin to take on a new set of fibrous roots, from above the union, which will be of the pear stock, and not of the quince. When this is done, the tree is much more self-supporting by the growth of the stronger roots which come from the pear stock, thus preventing it from being tipped over

by the prevailing winds. Also, this tree will practically be headed without any height of trunk whatever, and at the same time with nearly if not quite as large a top. And in this instance the strongest reason for not growing the Anjou pear is overcome, namely, that of being so easily blown off. The trees are put five or six feet nearer the ground and thus escape the swaying produced by heavy winds. In fact, this has become so well established that one of the leading nurserymen of the state has top-worked over an old Duchess orchard in the manner described to an Anjou orchard.

The advantages in spraying are also such as commend this practice to common use, as the trees are much lower and much more conveniently covered with spraying materials. A good wind-break is also considered by reliable authorities to be of great use in keeping this kind of fruit on trees until proper time of picking. This fruit well grown is universally a good seller, which makes it attractive from a commercial standpoint."

THE REINE CLAUDE is undoubtedly the finest of all plums for pies and preserves. Its flavor is most agreeable and its color an attractive yellow. In France this plum is grown in immense quantities for the Paris market.

REPORT OF THE SAN JOSE SCALE COMMISSION.

THE report of this Commission is just to hand, signed by Dr. Mills and Messrs. Dearnness and Bunting, three excellent men in whom the fruit growers have every confidence. The recommendations of the Commission are very much in line with the resolution passed by our Association at Whitby, and help to evidence the propriety of our position. The Committee had visited Catawba Island in company with Prof. Webster of Ohio, an island which is a continuous orchard for miles. Here 3000 or 4000 badly infested orchard trees had been removed in a block, and the surrounding orchards, which were not seriously infested, had been treated to whale oil soap—from one to two pounds to the gallon. The result of the treatment is very encouraging, for the treated orchards had taken on an exceptionally healthy and vigorous appearance, and although the scale had not yet been totally exterminated, it had not done any damage since the treatment began. Indeed the owners claimed that the treatment had been a blessing to them, not only in destroying the scale, but causing the trees to take a new vigor, through being cleared of insects and fungi, notably bark-lice and curl leaf.

It was Prof. Webster's opinion that persistent treatment would effectually exterminate the pest in the course of a few years.

Among other good points in the report, the following suggestions regarding future methods of procedure will be read with interest :

1. That the work of inspection, in a modified way, be continued for some time.
2. That the knowledge of sub-inspectors be tested, and none but certified and approved men be employed.
3. That the inspector be authorized to destroy at once all trees and shrubs which show signs of serious injury from the scale, or have their trunks and principal branches incrustated therewith.
- (b) Badly infested trees and shrubs of un-

profitable varieties, or in unhealthy condition, even though not very much injured by the scale.

(c) Single infested branches or limbs on trees which appear to be otherwise free from infestation.

4. That all infested trees and shrubs, except the above, and all exposed trees and orchards be thoroughly treated according to the most approved method.

5. That large discretionary power be given to the inspector in dealing with isolated infestation in districts that are otherwise free, or supposed to be free from the scale.

6. That in order to secure effective treatment the work be done by the Government, but the owner be required to pay for the material and board the men and horses during the time of treatment, with the proviso that this course is only to be pursued with infestations discovered after that date be destroyed without compensation, or treated wholly at the expense of the owner.

7. Provides for frequent treatment in summer time of badly infested trees in foliage, which involve risk to neighboring orchards.

8. That the inspector be authorized to order the destruction of small trees and shrubs growing in fence corners and other places, where in his judgment, the removal of such growth is necessary to check the spread of the pest.

9. That owners be paid one quarter of the value of their trees without discount, and that the fruit on a tree be regarded as part of its value.

10. Provides that the method of valuation be modified so that the owner may be represented.

STOCK JOBBERS are already in the field offering a gullible public shares in liquid air stocks, much as they have recently been reaping rich harvests selling "salted" mining stocks. We warn our readers against all such tricks to get their money.

NOTICE OF THE HARDY FRUITS OF UPPER CANADA.

*To the Caledonian Horticultural Society**Edinburgh.**

DURING my residence in Upper Canada I had frequent opportunities of seeing and admiring the profusion of fine fruit produced in that country, the apples in the orchards are particularly fine. accustomed as I had been to see fruit-trees in general raised only from grafts or buds, I had no idea of the facility with which apple trees can be raised from seed, and in a very few years, in that fine climate, produce abundance of excellent flavored fruit. There are many of the trees, however, that produce fruit fit only for cider, which are more valuable to the inhabitants than the fine sorts, as they can find a ready sale for their cider which they could not do for their apples, were they ever so fine flavored; and for that reason they are at no trouble in selecting their seed from the finest kinds, or grafting or budding from them.

The inhabitants of Lower Canada seem to have paid considerable attention to the cultivation of fruit-trees for a length of time, as may be judged from the fine specimens of healthy old trees that are to be seen in their orchards. They cultivate several kinds of very fine apples, which have probably been introduced from France, particularly the Pomegrise, Bourassa and Fameuse; they are also beginning to cultivate several varieties that have been grown from seed in the country. I have no doubt whatever, that, if proper care is taken in saving of the seeds, seedlings will be procured so similar to the original in appearance and flavor that the difference would not be easily detected. I was informed that the island of Montreal, about thirty years ago, was much famed for the quantity and excellent quality of its pears, but now

there are very few of that fine fruit in the country, part of the young ones are in an unhealthy state, and no person could assign any cause for this general decay of their pear trees. The Kentish cherry succeeds better than any other that I have seen cultivated in any part of North America that I have visited; they produce fruit in great abundance, and certainly better flavored than in this country. They are propagated from suckers chiefly, which leads me to suppose that the original trees have been propagated from seeds imported from Europe. I have seen good crops of some other kinds in Kentucky and Virginia, viz., blackhearts, May dukes, etc.; but there the trees are much injured by the intense heat of the sun, and most kinds of cherry trees grow very erect, from which circumstance the foliage can yield no protection or shade to the stem or trunk of the tree, and in a few years it will be completely decayed, except a small piece of wood and bark on the north side. I observe that the branches that were shaded from the sun by their own foliage had sustained no injury from the above cause.

Peach trees succeed tolerably well in Lower Canada on walls; in Upper Canada, particularly on the Niagara river, they succeed very well as standards. They grow with great rapidity, but very little attention is paid to them; they are all raised from seed, and many will produce blossoms, if not fruit, the third summer. A few are large and fine flavored fruit, and many tolerable.

Quinces, on the Niagara river, produce generally a good crop. They are certainly a finer flavored fruit than those produced in England, being free from the disagreeable smell that the English quinces have, and are esteemed the best fruit for preserving in that country. The trees are remarkably dwarf, which I suspect is owing to the method they have in propagating them, which is altogether from cuttings, and these are generally branches of considerable size, and planted in the spring.

* This paper is one that I picked out of a book of the minutes of the Royal Caledonian Society, Edinburgh, read at that Society's meeting in the second year of its existence by one of its directors, when the King was one of its patrons.

RODERICK CAMERON,
Niagara Falls.

NOTES ON SMALL FRUIT CULTURE.

CURRANTS.

CHERRY.—Is the largest and most showy of all red currants, but with me it has been a failure. The bushes grow very heavy soft wood, with soft pithy heart. The currant borer eats all the centre out, causing the wood to die. Shoots that escape the borer bear well.

WHITE GRAPE.—With me has always been a success for the last twenty-five years, giving me an average crop even in frosty seasons when other kinds has been a failure. The bushes grow somewhat dwarf and are covered with a very heavy coat of leaves, and the limbs droop over each other so that they protect the fruit from late spring frosts almost entirely. Fruit and bunches large. Excellent for table use, not so acid as the red varieties. Will hang on the bushes till October.

FAY'S PROLIFIC.—Is a fine free grower, bearing large, showy fruit of good quality, but on my soil seldom produces an average crop.

RABY CASTLE (OR VICTORIA).—Is a very rapid strong grower and a very heavy bearer of long bunches of medium size fruit of good quality. Some of my bushes are eight feet across and yield from thirty to forty quarts each. It is decidedly the most profitable of the red sorts. Hangs on the bushes till late in the season without spoiling.

BLACK CURRANTS of all kinds are a failure on my soil. The bushes grow well, but never produce a paying crop. I believe the cause of failure to be too dry a sub-soil, my land being

at the depth of from two to three feet underland with dry, loose gravel.

STRAWBERRIES.

BUBACH.—I received from our F. G. A. some years ago, but I did not make a success of it. It bore well when I could get good young plants; some seasons I failed to get good young plants almost entirely.

MARSHALL.—Is a large, fine showy berry. Quality very good. Gives here only a moderate crop. Makes plenty of strong young plants every season. I find it somewhat tender in winter.

BRANDY WINE—Fruit large and handsome. Quality good and a fair bearer. It sets plants well and winters well. It ripens late.

PARKER EARLE.—Is a late variety, medium size, excellent flavor and very firm. Not productive enough with me to be profitable.

JAMES VICK.—Has been the best and most profitable berry on my soil that I have yet tried. The plants are very strong and vigorous. It sets plenty of young plants that winter well. Blossoms late, so that it is seldom hurt by spring frosts. Fruit large. If plants are given plenty of room it sets such a quantity of fruit that unless plants are well thinned the fruit will be small. The fruit stems are strong and hold the fruit well up from the ground. Berries are firm, quality very good and will keep longer on the vine than most sorts.

St. Mary's, Ont.

S. H. MITCHELL.

THE BEN DAVIS IN N. S. AND P. E. I.

WHILE Rev. Father Burke, of Prince Edward Island, and Mr. S. C. Parker, Secretary of the F. G. A. of Nova Scotia, agree perfectly as to the thrifty character of the Ben Davis in Nova Scotia and Prince Edward Island as elsewhere, there would appear

to be some grounds for Senator Ferguson's remarks commented on by those two gentlemen. The Hon. Senator had been attending exhibitions and possibly conventions in Nova Scotia, where no doubt several speakers held the views he took up. The esteemed Secretary of the

Nova Scotia Association seems to have overlooked in his interesting article of last month a discussion given in his own last annual report, page 97, where this occurs *inter alia* :

"John Donaldson : With respect to grafting the Gravenstein on the Ben Davis—the latter is a *slow-growing tree*. I am afraid Gravenstein would grow out of Ben Davis. I have grafted Gravensteins on the Cayuga Red Streak.

"Professor Sears : I only gave the matter as an example. I have not thought it out. *But your objection is a good one.*"

With those opinions openly expressed in convention and printed in the annual report of the F. G. A. of Nova Scotia, then it is not strange that Senator Ferguson acquired this impression that Ben Davis was a *slow grower* in Nova Scotia. Mr. Donaldson may have been mistaken, but in our official reports it will be well always to revise the discussions carefully and see that no unreliable information is let out uncorrected, for the inexperienced, looking for information, will accept such and have a right to accept such reports as thoroughly reliable. But it is satisfactory to know now on the best authority that the Davis is a "grand grower" and a grand bearer in N. S. and P. E. I.

A. E. BURKE.

Alberton, P. E. I.

SIR,—I notice on page 483 of the December number, from A. E. Burke, that Senator Ferguson went home from visiting us during the exhibition with the idea that in Nova Scotia the Ben Davis tree was regarded as slow growing, delicate and of short duration. I can assure the genial Senator that he carried away a very erroneous impression of the popular idea in Nova Scotia concerning the Ben Davis. Certainly public opinion here would concur with Mr. Burke. The Ben Davis tree in Nova Scotia is a rampant grower, a remarkably early and prolific bearer, hardy and healthy, always clean and thrifty. If any person thinks its career will be short, and many do, it is because of its poor quality. We fear that when it becomes well known in the English market it will fail to sell. While on the authority of Prof. Craig, in Gravensteins and Ribstons the Annapolis Valley has no equal on this continent, it seems like tempting Providence to plant an apple that as grown with us is at best third class and much inferior to the same apple as grown in the Middle and Western States.

Personally I am of the opinion that Stark is fully equal to the Ben Davis as a grower and bearer, and being larger will be a more profitable apple.

Berwick, N. S., Dec. 20, '99. S. C. PARKER.

COLD STORAGE FOR FRUIT GROWERS.

THE fruit farm is the proper place for the cold storage of fruit. This is the consensus of opinion of all authorities. There are many reasons, but the one which appeals most to farmers and sellers is, that with cold storage on the spot, the fruit will not be damaged in handling before it reaches cold stores in the selling centres. Another thing : with the farmer having a knowledge of cold storage he will be more careful of his own harvest in putting it where it will keep. He will reap the profits consequent on the rise in prices where he only received the market value of his product.

This will be added to the value lost in deterioration caused in transit. Thus the grower will, with his own cold stores, obtain from one-third to one-half more for his crop than he would if he possessed no storage facilities.

In the grape districts in Western New York the growers have their own cold storage, and they have found that the grapes picked from the vines and carried direct to storage keep much better and longer than any put in cold storage in the cities. These grapes can be marketed in the middle of winter without much loss from waste.

THE PEACH.

THE Kansas State Horticultural Society has published a volume on the peach, giving very complete directions for planting, care, gathering, and marketing this fruit. A considerable amount of the matter is unsuited to Ontario, but we make a few extracts of portions that are applicable to our conditions.

SOIL.

The soil for a peach orchard should, if possible, have a good clay subsoil, naturally well drained, and be rich enough to produce a fair crop of wheat or corn to the acre.

Some people appear to think that if they have an old field that is so exhausted it will not produce profitable farm crops any longer, and is washing into gullies, there is the place to plant an orchard. No greater mistake can be made. If you are not willing to devote good land to the orchard, our advice would be to let the business alone. In the region of country for which I am writing we find that the so-called red lands, as well as the grey, and those that are composed of sandy loam with a clay subsoil, all produce first-class peaches.

PREPARATION.

The entire surface should be plowed deeply before planting; then check each way with a plow, planting where the furrows cross each other. Dig the holes sufficiently large to admit the roots without cramping. In locations where the subsoil is poor, it is advisable to dig a hole, say three feet in diameter and eighteen inches deep, and then fill up with good surface soil, leaving the excavation that is to receive the tree of such a depth that the tree, when planted, will be about the same depth, or a little deeper, than it grew in the nursery. The proper distance apart for planting is from sixteen to twenty feet each way. In orchards with sloping or uneven surface we generally recommend locating the rows as near a horizontal

line as practicable, about eighteen feet apart, and the trees in the rows sixteen feet apart.

VARIETIES.

The selection of varieties for the commercial orchard is a point that is vital to its success and in making this selection there are a number of considerations that demand our attention. While I do not condemn new varieties, yet it is wisdom on the part of the commercial grower to "touch them lightly" until he has tested them himself, or they have been tested by others in soils and locations similar to his own. Then there is the matter of hardiness in fruit, and consequently greater certainty in producing regular and paying crops. For while a variety may be beautiful in appearance and first-class in flavor, it may, on account of its unproductiveness, be unworthy of a place in the commercial orchard. The grower should also study the markets that he wishes to supply, that he may learn what style of peaches is most in demand in these markets. He should also study the production of other peach centres with which he may be brought in competition. For instance, if some other favored locality sends, at a certain season, large quantities of some leading, first-class variety to market, it would not be wise to endeavor to compete with them at the same season with any variety in the smallest degree inferior to what they are sending in such large quantities to the market.

The commercial grower should therefore confine his list to a few varieties. If the fruit is being grown for a home market, then, of course, a great range would be admissible. . . . A good reason for planting only a few varieties is that this will enable the grower to have his fruit carried to the market at less expense. Having large quantities to ripen at once, he can ship by car-loads. The difference in cost between this method and express, affords quite a profit in itself. If I were planting an orchard of only 5000 trees, and had no one at the same

shipping point to unite with in making shipments, I would plant only one variety.

PRUNING.

The work of pruning begins before the tree is planted; first, all broken and bruised roots should be cut back to sound healthy wood, with a sloping cut on the under side of the root, always using a sharp knife.

If there are any side branches they should be cut off, leaving a single straight stem, cut off at the height of one foot to eighteen inches from the ground. There are many good reasons for having our orchards branched this low. When the trunks are shaded they are less liable to disease. With no long trunk for leverage they are less liable to be blown over by storms. When trained with low heads, pruning, thinning and picking can be done for a tithe of the expense involved where the workmen must use ladders to enable them to reach the high and widely extended top.

The planter should aim to have four or five well-developed buds on the upper part of the trunk when planted, as the new branches grow from such buds more readily and vigorously than from those near the base of branches that have been cut off. Three or four of the branches that grow out the first season will be needed for the framework of the future tree.

By rubbing off as soon as started all superfluous shoots the grower can, to some extent, economize growth, but if not rubbed off they can be cut out at the first pruning after the tree has attained a year's growth.

During the latter part of winter, before the trees start into growth, all shoots not needed for the permanent head of the tree should be cut out, and those left (which should have attained a length of three to five feet) should be cut back to two feet or two and one-half feet.

It has been customary to cut back even shorter than this, say to one foot or eighteen inches, but the tendency of such very close pruning the first year is to have the tree too dense, its leading branches too close together. Each of these main branches will, the second

year, throw out leaders, each of which will make a growth of four to six feet. At the second annual pruning the first aim should be to establish a broad, low, open-headed tree. This can be accomplished by first thinning out all crowding inside branches, and shortening in all others from one-half to three-fourths of the year's growth, doing the closest cutting in the central top.

The third year's pruning should be on the same general plan, having the same object in view, to establish a well-formed tree best suited to produce the greatest quantity of fruit in the highest perfection. Pruning must be kept up year after year, but as the trees grow older less severe cutting will be required. The aim should be to avoid long, bare branches that only bear fruit at the extremities, and, as a consequence, break down the trees.

No specific set rules can be given for pruning, but every one who would prune intelligently must study the characteristics of growth and fruitage of the trees upon which he would use his knife.

Pruning may be done at any time during winter, but we prefer to have it done after the buds begin to swell in early spring. If done earlier it tends to hasten the development of the buds left, thus increasing the liability to injury from frost, and if buds have been injured before trimming you can then trim to retain as many live buds as possible.

THINNING.

This operation is necessary to success, but one that puts the nerve of the inexperienced grower to a severe test. This work can be partially accomplished by pruning as we have intimated, and some seasons the late frost will do the work even more thoroughly than we may desire.

It is not unusual in a good season for a four-year-old tree to set 800 to 1000 peaches, which, if left on the tree, would measure two bushels when ripe, and be worth perhaps fifty cents per bushel; but if all down to 300 were pulled off, these, when ripe, would also measure

two bushels, but be worth two dollars or more per bushel; and while the small peaches could only be shipped at a loss, the larger ones would yield a handsome profit.

A large per cent. of the edible part of a peach is composed of water; hence it is the formation of the seed that exhausts the vitality of the tree. The perfecting of the seeds of such an immense number of peaches will frequently exhaust the vitality of the tree, so that it cannot produce another crop for years, and this is one reason why peach trees allowed to overbear are usually short-lived. Peaches should always be thinned before the seed begins to harden, while you can still run a pin through them without meeting any obstruction from the seed. If any show marks of having been stung, or are in any way faulty, they should be taken off and destroyed.

We should leave the peaches as equally distributed as possible, from four to six inches apart, all over the tree. The cost of thinning should not be considered, as if they were left on they must be picked when ripe, and it certainly will cost less to take them off while small, to say nothing of the vastly increased value of those that are left to fully develop.

Remember that overbearing is the "besetting sin" of the peach tree, and that thinning *must* be done if you would grow the finest fruit. If we were asked to give the approximate number of peaches that should be allowed to mature on a tree, we would say, for a three-year-old tree, about 150; for a four-year old, 250; for a five-year-old, 400; but seldom over 600 for a tree of any age.

CULTIVATION.

It is just as reasonable to expect a good crop of corn without the same care. During the first two or three years some low hoed crop, such as peas or melons, may be grown in the orchard, but they should not be planted too near the trees, and the space around the young trees should not be neglected, but should be kept clear of weeds and grass and the surface mellow.

The cultivation of young orchards should be suspended about the 1st to 15th of August each year, in order that the young wood may mature

before winter. Cultivation should be kept up in the orchard as long as it lives. It should commence in the spring, as soon as the blossoms open, when the orchard should be carefully plowed, being careful not to plow so deep as to injure the roots.

For subsequent cultivation, on lands not too rough or stony, the Acme or Cutaway harrow may be used, thus saving much time and expense. It will, however, usually be necessary to use a one-horse cultivator directly in the row and next to the trees.

We need scarcely caution the orchardist that great care should be exercised in the work of cultivating not to break the branches or in any way mutilate the trees. Cultivation should be kept up as often as necessary to maintain the surface in good condition until in August.

FERTILIZING.

Of the three essential constituents of plant food—nitrogen, phosphoric acid and potash—nitrogen is of the greatest value in promoting growth and forming wood. This fact indicates that manures or fertilizers rich in nitrogen should be used during the first years of growth in the young orchard.

Of this class of fertilizers, we might mention well-decomposed barnyard or stable manure and cottonseed-meal, which should be applied early in the season, to be turned under at the first spring plowing.

When planting no manure should ever be put in direct contact with the roots, but in some soils a few handfuls of fine bone may be mixed in the soil about the roots. When the peach tree comes into bearing, phosphoric acid and potash are necessary to the proper development of size, beauty and flavor of the peach. These elements can be supplied by fine ground bone and muriate of potash, or hardwood ashes. Many orchards become unprofitable because they are not properly fertilized. One great reason for the failure of so many orchards is because they are starved. After the trees come into bearing, they have to perform the double function of developing wood growth and perfect-

ing the fruit, and the failure to perform either of these functions properly is evidence that the soil must be enriched or the orchard will no longer be profitable.

The rootlets that absorb the plant food necessary to the growth of the tree and the perfection of its fruit are found away from its base; hence

the fertilizer should always be applied broadcast over the entire orchard.

The practice of piling up manure around the base of the tree is about as sensible as it would be to apply a poultice of bread and milk on a man's stomach to alleviate hunger.

A NEW PACKING MATERIAL FOR FRUITS.



AN interesting experiment has just taken place in the matter of packing fruits in the colony of Victoria for shipment to England, says the *Gardener's Chronicle*.

As is pretty generally known, apples and pears are now brought from the Cape of Good Hope and from Australian colonies in boxes holding a bushel, which are stored on board ship in cool chambers. These chambers, or refrigerators, have been provided by the steamship companies at a considerable outlay of money. The fruits are merely wrapped in tissue and placed in the boxes.

Under this system apples have for the most part come very successfully, but pears have been less satisfactory. Occasionally, there have been pears from the Antipodes that have reached this country in a sound condition, but numerous consignments have proved to be of little value, and the commission agent is never able to speak of such fruits or gauge their value until they have been unpacked. The freight per bushel from Victoria to London for apples or pears so packed and stored on board ship in cool chambers is 3s. 9d.

Such are the circumstances of the present system, and the amount of freight paid for passage.

And now for the experiment, for intelligence of which we are indebted to Mr. J. B. Thomas, a well-known fruit salesman in Covent Garden, to whom the fruits which have been the subjects of experiment were addressed.

Instead of packing the apples wrapped in tissue only, in the case of several bushels that have recently arrived in London by the ss.

"Wakood," a quantity of asbestos, or a preparation of this substance, has been used. The fruits were wrapped in tissue as formerly, and afterwards embedded in the asbestos, each fruit being perfectly surrounded by this substance. Upon unpacking the case, the asbestos appeared to be caked, but it was easily broken up, and then appeared almost like flour. We should suppose, therefore, that the fruits would be airtight under such conditions, and this will account for the fact that as we saw them they were perfectly sound, and in excellent condition, although five months had elapsed since they were packed in the boxes. The apples were grown by Mr. J. R. Warren, Mount Alexander Orchard, Harcourt, and Mr. J. M. Ely, Rosehill Gardens, Harcourt, both large Victorian fruit growers. They were packed and brought to this country under the direction of Mr. George Pontin, Church House, Yapton, Sussex. The apples were gathered and packed previous to May 5 last year, but owing to some objection, we believe, on the part of the steamship companies, there was a delay of two months or more before shipment, and even then they travelled by the Cape route. The companies, naturally perhaps, object to the introduction of a new system of packing fruits that may render unnecessary the cool chambers that have cost so much money to provide. But such objections will, no doubt, be overcome, and if a syndicate be formed, as is now proposed, the system will be given a conclusive trial. The new system, should it answer to expectations, will possess several advantages. The fruit may then be stored in the "hold" of the ship, and the

freight per bushel case will be 6d. instead of 3s. 9d. ; but as the packing material will displace a quantity of the fruits in each package, it may be well for the present purposes to describe the future freight of the fruit as 1s. per bushel. It must be remembered also that the asbestos is a valuable material in England, and it will be sold here to as much advantage as will the apples. The result will be that the asbestos and fruit would be brought to England for less

money than is now paid for the fruits alone. The apples will travel as well or better, and it is thought they may be preserved after arrival here for weeks if necessary, providing that the cases be not opened in the meantime. And beyond the other considerations, it is hoped also that Victorian pears, by this system, may be placed on the English market without much risk of loss by decay.

FLOWERS OF THE TRANSVAAL.

NOW that the eyes of the world are turned towards the Transvaal, the following paragraph may not be uninteresting to our readers regarding its flora :

It is an old disproved libel on South Africa to say that her birds are without song and her flowers without smell. Neither statement is true. The flora and fauna of the Cape Colony, Natal, and the Transvaal are various and fascinating. Many of the birds sing, and many of the flowers have perfumes peculiarly their own.

The gigantic Cape disa and the glorious Table Mountain heaths, of hundreds of varieties, have certainly no heavy perfume, but, on the other hand, the thousands of quaint little peeping veldt flowers, from pimpernel to orchid, have subtle suggestive odours which are exquisite and refreshing.

In the Cape Colony for many miles between the Paarl and Cape Town the line is bordered with so-called "pig-lilies." These are none other than our carefully-tended and garden-produced arums. But in South Africa they grow wild and in luxurious profusion. Near Ceres there are great fields full of these snowy-white blooms with their orange-yellow pistils ; and to see a couple of little nigger children playing about in this amplitude of whiteness is a delightful study in black and white.

Up in the Transvaal, if a farmer cultivates flowers at all—and all Boers are not as unappreciative of beauty as their detractors suggest

—he almost always has, on his stoop, or ver andah, a couple of tubs containing plants of keitje perring. This is the gardenia of the commercial London buttonhole. It is smaller, certainly, but equally exquisite in scent, and with a little care it flowers in great profusion. The tuberose also flourishes amazingly in the open air with but the smallest attention and cultivation. At Johannesburg grows the easily-trained and useful grenadilla. This is a species of passion flower, with a pretty little feathery-starred flower and a very delicious egg-shaped, crinkled-up brownish green fruit, containing a yellow pulp with many flat black seeds. It has a cooling, slightly acid flavour, which must be tried to be appreciated. The grenadilla grows easily and quickly, and in flower, in fruit, and in foliage it is very beautiful.

THE KIEFFER as a dwarf is reported a failure by M. J. Graham in American Gardening. In 1895 he planted fifty first-class two year old dwarf Kieffers. Ninety per cent. were dead the end of the second season, and those which survived were found to have thrown out roots from Kieffer stock above the Quince. Other dwarf pear trees made good healthy growth. Certainly there is no use in planting Kieffer as a dwarf when it grows so rapidly as a standard and bears so early. At Maplehurst our Kieffer two years planted bore abundantly, one tree yielding two hundred pears !



WINTER ROSE TROUBLES.

OF ALL pests of the rose in the house or the greenhouse the red spider is certainly the most common and also one of the hardest to get rid of. The only practical cure or preventive for it is often overlooked by the young rosarian because of its simplicity; this cure is the "cold water" one. In commercial rose growing one of the essentials is a good water pressure for thoroughly spraying the foliage above and below on sunny days. In a conservatory it is, of course, an easy matter to apply the cold water cure with the hose or syringe, but with plants grown in the house they are difficulties enough. Rose plants cannot be effectively syringed in the window or on the plant stand; take them to the sink or bath and give the foliage as thorough a drenching as it would get in a driving rain storm. Do this every other day if the weather is bright; it must also be attended to on dull days during a continued spell of them.

The Scollay rubber sprinklers, of which several sizes are made, are a grand thing for sprinkling roses, in fact one is indispensable for the window garden. The red spider will be found on the under sides of the leaves, he often works away there, sapping

the life and substance from the foliage till the plant becomes unhealthy looking and receives a check that it will not recover from all winter. The minuteness of this insect is well illustrated by this amusing incident told by the late Peter Henderson in *Practical Floriculture*: "Many years ago I had in my employment a young Irishman, who, by showing more than ordinary energy, quickly passed through the different grades, until he was duly installed as foreman. At that time we had been firing a Camellia house, and by neglect of keeping a properly moist atmosphere, the red spider had made sad inroads. John was duly instructed to syringe the plants night and morning to destroy it, which he did, no doubt, with a double object in view, as the sequel will show. John was on all occasions rather demonstrative, but one morning he came rushing towards me, his face radiant with triumph, with his hat off, but clasped in his hands in a careful manner, evidently having something of no common value within it. Before I had time to inquire the cause of his excitement he yelled out: 'I've got him! bedad! I've got him at last.' 'What have you got?' I enquired, expecting to see something in the way of a rat or mouse. 'Arra the big

devil himself, the big blaggard that has been doin' us all the mischief, the *Reed Spider*, and opening his hat a villainous Tarantula-looking fellow ran out, bigger than a thousand spiders, which was quickly despatched by John's brogan. From that time John learned to know what the red spider was, but was never anxious to allude to it afterwards." Get to know this insect, if he has not introduced himself already; he is pas-



FIG. 1741. TEA ROSE IN A STATE OF REST:
PRUNED AND REPOTTED FOR SPRING
FLOWERING.

sionately fond of many other plants besides roses, and may do you a lot of damage some day unless you know how to checkmate him.

Mildew, as it attacks roses, appears like a fine white powder at the first; it is a fungous growth and unless checked will do irreparable damage; vigorous, healthy growth will do as much towards warding off this trouble, as it will insect pests, but there are times in dull winter weather or during a damp cloudy

spell when mildew will make its appearance, even in places where roses are grown as a specialty. In greenhouses it can at most times be prevented by applying sulphur to the heating pipes, mix it with water to the consistency of paste and apply with a brush when the pipes are hot; rather apply it often and in small quantities, too much will injure the young growth. Several of the insecticides offered contain some form of sulphur and will keep the plants free from mildew. It is our preference to use a remedy for each enemy, knowing just what it is applied for, rather than to use a doubtful "cure for all;" 2 ozs. of Sulphuret of Potassium dissolved in 4 ozs. of water and used as a spray is useful when the fire is not going. The green aphid, or plant louse, as it is sometimes termed, is the third principal enemy of him who would grow roses during winter. Fumigating the conservatory by burning some moistened tobacco stems is the usual remedy, the smoke will temporarily deprive the flowers of their perfume though. The use of a tobacco extract, such as *Nicotine*, will not effect the perfume. These extracts are diluted with water and after the solution is put into a metal vessel a hot iron is dropped in to evaporate it. For the window that possesses but three or four rose plants the following is simple and effectual: Cover each plant with a paper cone and give the smoking member of the family a cigar, of course he will consider it no hardship to blow a few whiffs into each cone; this will quickly rid the plants of green fly.

There are ways of preventing those rose troubles without insecticides—not that rose pests can possibly be entirely prevented without them, but the fact is that if you start with vigorous, healthy, plump-wooded plants and maintain proper temperature and atmospheric moisture your troubles will be minimized. As a man, full of vitality and strength, will escape many of the thousand natural shocks that flesh is heir to, so healthy

plants will in a great measure escape their enemies. Do not make the mistake of choosing indifferent rose plants for the purpose of winter flowering, intending by good culture to restore them to full vigor. Remember that in forcing a rose for winter flowers you are overcoming their natural inclination to rest in winter, and, consequently, drawing heavily on the life and energy of the plant.

Roses planted in the greenhouse in Sep-

tember or October (and there are many planted then) miss the season for putting on the kind of growth that makes good winter flowers a possibility. June and July are the proper months.

This year, at the proper season, we hope to give *Horticulturist* readers a few helpful reminders about early planting of forcing roses.

WEBSTER BROS.

Hamilton.

CONSERVATORIES IN OUR HOMES AT SMALL COST.



Our Whitby meeting Dr. Harrison, of Keene, gave an inspiring address on the above subject, which we publish now in advance of our report because the topic is a seasonable one.

DR. HARRISON: "I am to talk a little with regard to flowers. In our young country—because we are still in the condition of youthhood as a nation, beginning to feel that we have manhood coming to our shoulders, and that we must soon in God's providence take our place in the rank and march of nations—(hear, hear)—in our younger days we were satisfied with the flowers that were in the windows, and we took much pleasure and so much joy out of them. Why, you as well as I, sir, have been in many a home and seen with what joy and pride the lady of the house looked at that spindly thing in the kitchen window. It was the dead of winter, but it had a few sickly green leaves on, and it was a joy to her heart. But as we have advanced in our social surroundings and in our better equipment all the way round, the demand is that that æsthetic sense—which is one of the senses that has not been taken cognizance of as it should have been—demand a better quality of flower and a larger variety. Look at this exhibit and think of the fruit we had when we were boys. I had the pleasure of

going to a school, walking a mile and a half, and it was a joy to our hearts when December came that we could go over to a crabapple tree with apples about that size (showing) that would draw your mouth up. Were any of you in Toronto during the last chrysanthemum show at the Pavilion? Look at those massive things. You could have those in your homes. Look at those ten inches in diameter. Look at those orchids which stood up on that dais; you can have these things. Look at those carnations which were so charming, and those roses which Dunlop had there; we can have those too, and not at great expense. How? That is the first question. There are two ways within the reach of every person of average means. In the first place, in constructing our verandahs, construct them with the idea that they are in touch with our principal living room, whether that is your library or dining room, or whether it is a sort of half withdrawing room. A wide verandah, a verandah you can get a large amount of side light, then you can have a bench along the side of that, and you would be surprised—I have tried it for myself—what a quantity and what a richness and what a fullness of bloom is possible. Now, you know that in so many of our homes now, instead of the old wood stove or the old base burner coal

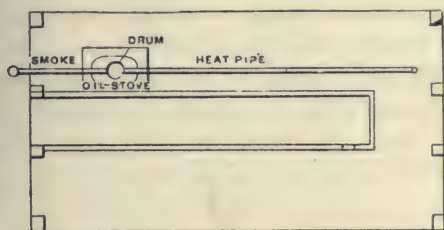
stove, we have our furnaces in the cellar. You say, 'Well, what are you going to do with hot air?' You can do something with hot air, but not so much as with hot water; and there is no furnace, whether for wood or coal, in which you cannot put a little coil and carry that into the small conservatory and give it a generous, even heat which will give you beautiful flowers. You try to grow a certain class of flowers or roses, say carnations or violets, in an ordinary room, you can't do it satisfactorily. Your roses will be overcome and devastated with the aphid, and your carnations will fail to open up in their beauty, and the violets will religiously refuse to bloom satisfactorily and give their fragrance. Why? Because the temperature in the ordinary room is up and down, up and down, and that is inimical to plant prosperity. They don't like any better than we do the see-saw of life, and they don't prosper on it any better than we do. It is irritating and they resent it at once. Another form of conservatory, which is more desirable and cheap—remember, I am not talking about one that is the most desirable and expensive, nor one that with its span and with its arched glass roof is one of the luxuries which are only available to the rich—but I am speaking of that which is avail-



able to those of smaller means; that is, to build on the side of the house a lean-to conservatory; and I have one in my mind's eye now, 12 feet long, $8\frac{3}{4}$ feet wide, with 100 plants that are doing sterling duty the whole year round and supplying the house with a

profusion of bouquets. That is a small house, but you can have it anywhere 10, 12, 14 feet wide, and whatever length you want; but by giving a top glass to it you have plants which grow straight up. It is just the ideal thing for your carnations. They open up beautifully without that crack on the side which is so apt to be with side light where they turn their faces. Having the top light you bring your plants nearly to the glass so as not to meet so much of the refractive rays, causing your plants to be healthier and sturdier in growth, and the flowers themselves to be richer in tint and sweeter in odor. Carry out the same idea again in regard to heating. If you don't put in a heater by itself, carry from your house furnace a coil and you can run your hot water underneath your plant shelves, or you can run it above it, or run each pipe along the glass. The advantage they claim for the latter place is that the air that comes chilled from the glass becomes heated before it falls on the flowers. Either take in a verandah and make a conservatory of it or build a lean-to and make a conservatory of it. You can take the latter and make \$100 build your concern, put in your heating apparatus if you have not already a furnace in your cellar, and stock it with a fair variety of plants, which you could not grow in your living rooms to advantage. Last year I saw a little conservatory of that sort 9.6 ft. wide, 24 feet long, with 500 plants, with bouquets of roses and carnations, geraniums, fuschias and a large number of the other plants, supplying not only the household but a church on Sabbath day with bouquets, and furnishing flowers for nearly all the sick families within the radius of some three or four miles, and I am positive that that did not cost \$80 in its whole outfit. It was built and heated by itself, which is the better way, because then you can regulate it. One of the old "Giant" stoves was taken, and in the top of it there were five coils of inch pipe, and then

that pipe was carried with ten coils under the bench, six coils on the back wall, and the whole of that plumbing was as follows: The cost of the stove was \$6; the mason was paid \$3.50 for bricking it in—the mason found the brick; and the plumbing cost \$22; the owner being a handy man built the walls himself, bought the material at the sash factory and had a carpenter two days to get the thing closed; and with that small cost he



had all that beauty for himself and others. Don't attempt to put everything you can read of in the books into your conservatory; nor to put all that you read of in books into practice. Go slow. Feel your way. We are always safe in starting with geraniums. The geranium is one of God's greatest blessings in the flower line to humanity, because it will stand almost any treatment and show a smiling face. There are some plants that are just as pernickety as pernickety can be, but you must understand their pernickety-ness or you won't get the pleasure from them. You who love horses don't want a horse that goes like a tame sheep, but you want one that makes you feel the ribbons, and that is a thing of life, and you control it. That horse steps out and you feel that you can pass John A. Thompson as you go down the street. Flowers need to be handled in the same way. It is said that roses would be as sweet under any other name. I don't know; I never saw roses under any other name, but you know they are sweet and desirable. The plant that would be more

amenable next to the geranium probably is the carnation; but those of you who are lovers of flowers know that what we called carnations when we were boys would not pass as flowers to-day. Look at those carnations, great beauties splashed white and rose, yellow, mauve, almost all the shades of color, and so sweet and so fragrant, and they can be grown in a little conservatory, so that a couple of dozen roots will give you carnations galore. Then next to that, in a small conservatory it is desirable to have that which is ornamental. Then you come to the palms. Keep to the Kentias, they will give satisfaction. There are certain plants which have somewhat been neglected in the greater majority of families, and this is the begonia family—beautiful plants that require little attention and little study, and which are most desirable and full of beauty. They would be almost sufficient for any amateur to start with and would give him satisfaction. Where there are apples and music there should be flowers. You know there are birds in so many homes, and what a dirty thing that sweet little canary is, and how often you have to take the dust-pan to gather up those broken seeds; but you could have fish—a small aquarium fitted with some of those Mediterranean carp known as gold fish, or even some of our own minnows or shiners or red roach or the beautiful sunfish. A few of those in an aquarium, with a certain amount of plant life, so as to balance your animal life with your botanical life; the water should not require changing any oftener than two or three months, and you may feed them a little German feed once a day, and you have got a thing of beauty and a joy forever. Their sinuous and graceful movements are a charm, and you can sit and watch them with pleasure, and they are ever so much more cleanly to look after than Dicky is."

WATERING HOUSE PLANTS.

I AM satisfied that not one person in twenty is aware that too much water is more dangerous to the plants than too little. Some gardeners seem to have the idea that to take a watering pot in hand to supply the needs of plants is an easy duty, and that to give a dash here and to soak the soil there is all there is to the matter. One thing is to be observed: All plants under all circumstances, nor, indeed, the same plants under different circumstances require the same amount of water. It is necessary, therefore to study the nature and habits of kinds so that each may be treated according to its needs. A vigorous blooming plant, say a fuchsia or ger-

anium, might be said to represent the maximum need of water; the same when in a state of rest, in cool, damp weather, the minimum requirement as to this. Therefore to give exactly the same quantity of water in both conditions named, would be to cause harm by not giving enough water to some and too much to others. One safe rule is to wait until the ball of earth begins to get rather dry, and then to give enough water to moisten the soil through and through. Then do not water again until the former state of dryness is reached, be that time six hours or six days.—*Vick's Magazine*.

LOBELIA CARDINALIS.

THE LOBELIA CARDINALIS, or Cardinal Flower, is the most showy of our native plants. Its rich, cardinal-red shade is extremely rare in flowers; in fact, we can recall no other wild flower of the same gorgeous hue. Though growing naturally in rather wet spots, it takes kindly to cultivation and will grow and blossom very satisfactorily in almost any location, particularly if it is where a dash of water can be given it once in a while. It begins to blossom in July, and the long spikes of brilliant flowers will continue opening to the very tip, lasting until the latter part of August.

Numerous side shoots spring out from the main stalk and lengthen the time of flowering, and these little sprays mixed with some fern fronds are lovely for table decoration.

The plant can be raised successfully from seed, but will not bloom until the second year. With us, while not common, it is sufficiently plenty that roots can always be obtained if you know where to go for them. I have found that after the seeds have ripened the flower stalk withers and in the fall a new growth starts, forming a little green rosette of leaves, and this is the best time for transplanting.

This summer I found a plant with pure pink blossoms growing in the midst of hundreds of the typical colored flowers. I thought it a rare find, as I had never seen or heard of any such before. Later I found that one of the same color was growing in a bed of seedlings at Highland Park.—*Vick's Magazine*.

THE SAN JOSE SCALE IN GEORGIA.—A press dispatch from Atlanta, dated Dec. 30th, says: Thirty thousand fruit trees, comprising the entire orchards of D. C. and G. W. Bacon, in Mitchell County, will be burned by order of State Entomologist Scott, owing to the ravages of San Jose Scale.

In the immediate neighborhood of Dewitt, in the counties of Inerwein, Berrien, Worth and Mitchell, are more than 300,000 bearing peach trees, and in justice to the owners of neighboring orchards, as well as to perform a service for the state, the trees will be destroyed. The work will require several week's time.



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE YORK IMPERIAL is highly commended by H. E. Van Deman as a commercial apple. He advises Ben Davis as most profitable for Colorado, and York Imperial as second.

A GLORIA MUNDI APPLE was recently shown at the Indiana State Fair in 1899, weighing 23¼ ounces, and measuring 16 inches in circumference. This is claimed to be the largest apple in the world.

GOOSEBERRY MILDEW is very resistant to fungicides, and so far satisfactory results from treatment have not been obtained. Close, of Geneva, has been trying Bordeaux, lysol, formalin and potassium sulphide, and in each case the latter substance has given the best results. The Bordeaux mixture seemed comparatively valueless, though very early applications gave some favorable results.

CRUDE PETROLEUM has been tried with considerable success in the state of Pennsylvania as a remedy for the San Jose Scale. If this substance is effective, it is much cheaper than whale oil soap, and might perhaps be purchased in large lots for fruit growers' use in spraying their orchards, at wholesale rates. At the Petrolia mills crude oil has been quoted as low as \$1.65 per barrel.

John B. Smith, of the New Jersey experiment station, has also given two seasons' trial to this substance and gives the result in Bulletin 138. He says that a thorough application of this crude petroleum to dormant trees completely destroys the Scale without perceptible injury to the trees themselves. He has tried it on all varieties of orchard fruits except cherries, and upon some bush fruits, such as currants, gooseberry and raspberry bushes, with good results in killing the Scale, while the greasy brown coating of the bark which results and

remains for several months, pretty effectually repels fresh infection. If our infested orchards can be so effectually treated as Prof. Smith seems to have demonstrated, it is evidently useless any longer to continue the wholesale destruction of valuable orchards which are only slightly affected with this pest.

EXPORT OF RASPBERRY PULP.—Some of our readers are anxiously asking to know the results of our export shipments of raspberry pulp. The following enclosure from Mr. Harrison, Watson, is written by a firm which had been testing Raspberry for use in making essences, is not encouraging :

As to the Fruit Pulp, I am sorry to say that our experiences with it has been a failure. In making fruit essences, we find it necessary to develop a small amount of fermentation under carefully guarded conditions, and this properly done, the flavor and aroma of such fruit as raspberries is fully double.

The raspberry pulp, as prepared by you, is not susceptible to this change. In the letters of one of our correspondents, it is mentioned that the fruit was slightly evaporated before being sterilized in the tin cases. If this be so, it may be sufficient to account for its uselessness to us.

It may be that the natural ferment present in fresh fruit is destroyed in sterilizing, but I do not think this is the case, as the fermentive germs are sufficiently present in the atmosphere to excite change under proper conditions.

We will, however, make some experiments to determine this point when we buy our next year's supply of fruit but at present the want of flavor, aroma and color, in the canned raspberries makes them useless for our purpose.

KEEPING APPLES.—The winter 1899-1900 will long be remembered among fruit men for the early decay of apples stored for winter sale. Something in the season has caused a lack of that firmness and keeping quality usual with our best winter varieties. External conditions, however, count much more in the keeping of fruit than is usually supposed; cold and moderately moist air being most favorable. Gregory, the noted Seedsman, relates his experience as follows :

I noted that two of your correspondents, in their advice as to the best way for keeping apples, advised that the cellar should be a dry one. Here in eastern Massachusetts we don't think that way, but would prefer a damp, cool cellar, especially with the russet varieties, which are in-

clined to shrivel in a dry cellar. About 50 years ago, when a young college graduate, I was teaching a country academy in Massachusetts. At apple-picking time, one of my schoolboys brought me a Roxbury Russet from his father's cellar, in sound condition, that had been picked the previous year. The next day he brought me another that had been picked two years before. This also was sound, but it looked and tasted much as a cellar smells. I investigated, and learned that the apples had been kept in the house cellar, in barrels and bags thrown in on them, and that the cellar differed from ordinary cellars in being quite damp, which would be inferred from the fact that a stream of water flowed parallel with one end of the house and within six feet of it.

PACKING INFERIOR APPLES.—It is only fair to our many fruit growers throughout the Province to defend them from the blame manifestly laid upon them for shipping fraudulent packages of fruit. This filling barrels with cider apples and facing with No. 1 apples is not done by our fruit growers, but by speculators who buy orchards and ship, often under an assumed name, everything in the orchard. Here is one example, taken from the last November crop report :

Kincardine, Bruce: A great many of the farmers sold their orchards by lump and lost heavily by doing so. One man sold his for \$75, and they packed or filled about 300 barrels. Another sold his for \$25, and there were over 200 barrels, and so on. The packers had to pull the apples, and the consequence was that many inferior apples were packed, so that I fear it will hurt our market in the Old Land for another year. There ought to be something done to prevent them from sending inferior apples to the Old Country.

We hope the provisions asked for by our association will prove effectual in barring the continuance of this evil.

THE FORTY-FIFTH ANNIVERSARY of the Western New York Horticulturist Society was announced for Jan. 24th and 25th, 1900. Our President is the delegate from our Society, and we hope he may bring us back much valuable information. Among the subjects we note Fertilizers for Orchards, by Prof. S. P. Maynard, of Massachusetts; the Small Fruit Package Law, by M. D. Barnes; Soiling Crops as related, and Fruit Culture, by Prof. H. E. Van Dusen; Comfort and Plenty, by Prof. J. P. Roberts, Cornell University, etc., etc.

Our Affiliated Societies.

GRIMSBY.—At our annual meeting, after the election of officers, it was decided to hold monthly meetings, beginning the first Saturday evening in February, from 7.30 to 9.30. The committee will either secure a lecture, a paper from some member as the principal feature of the evening, to be followed by questions and discussion, or will provide a topic, as for example the Dahlia or the Palm, and ask each member to bring a reading on the topic, not to exceed three minutes, except perhaps in the case of the opening reading. The evening will, of course, be brightened by musical contributions. In this way much valuable information will be gained by every member in the course of a few years, and the effect must become noticeable in the flower gardens of the community.

PORT HOPE.—The annual meeting of the Horticultural Society was held in the council chamber on Wednesday, Jan. 10th, to receive the Secretary and Treasurer's report and elect directors for the year 1900. The Treasurer's report for 1899 was read showing an expenditure of \$245, from which each member received a monthly magazine, bulbs, plants, etc., leaving a balance of sixty dollars for the current year.

H. H. Burnham was elected president and A. W. Pringle, secretary-treasurer.

WOODSTOCK.—The exhibit held recently by our Horticultural Society may be considered a fairly successful one, both in a financial way and in the larger attendance of the public generally. Although this be so our members must not rest content, considering that the acme of perfection has been arrived at, nor must they be misled by the kind words of approval with which their efforts were received. In making some comments on the Show the writer hopes that her remarks will not be taken as unkind criticism, but in the belief that the consideration of any points which may be raised will lead to discussion which shall ultimately result in benefit to our members. The arrangements were, on the whole, satisfactory, and showed the plants to good advantage, but, regarding the plants themselves, few of them, from a florist's standpoint at least, could be considered specimen or exhibition plants. Among those which might be mentioned as coming nearest to this standard may be named a *Latania Borbonica* Palm, a *Phoenix Reclinata* Palm, a flowering *Begonia*, a *Musa Ensete* and a *Strep-sophon* Jamesoni, and of these possibly the first named palm was the best, being of a fair size and having perfect leaves. The majority of the plants exhibited were of such a character as looked well when massed, but individually would not look so well. The question then arises, can these plants be properly grown without the aid of glass? The answer would be that to a certain extent they can, but to be really successful with a large number the aid of glass is requisite. However, may it not also be asked do not amateurs endeavor to

grow too many plants and thus, by overcrowding, render it quite impossible to succeed as might be done by having fewer and consequently better grown plants? In certain classes of plants—the *Geranium* for instance—there seems to be a tendency to grow a very limited number of varieties, principally of the *Bruant* and *Souvenir de Mirande* type, the former of which, from their thicker leaves and semi-double flowers, stand the sun and rain better than the single and more double varieties. It seems a pity that this should be so for among some of the newer doubles and round-flowered English varieties, many of which carry flowers of over two inches in diameter and in large trusses, are to be found some which would be a perfect revelation of beauty to those who have not already seen them, and which make charming pot plants. Another matter to which our attention might with advantage be directed is that at our Shows, by the members at any rate, plants should have labels showing the name of the species to which they belong, and if the species be sub-divided into varieties, the name of the variety should be shown. Take for instance such a well-known plant as the *Fuchsia*, a visitor might be struck with the beauty of some particularly pretty variety and have a desire to possess a similar one. In this case if the name, Mrs. Marshall, Mrs. E. G. Hill, Phenomenal or whatever name by which the plant be known in commerce, be attached to it, the desire would be easily gratified.

Passing on to the cut flowers may we not ask why, in so large a Society as ours, together with contributions from others not members, as well, was the display so small and confined to so few classes? In order to bring out the facts as clearly as possible, let me as briefly as possible enumerate, as far as recollection will serve, the flowers shown: *Gladioli*, 2 exhibits; *Asters*, 2 or 3; *Cannas*, 1; *Phlox Drummondii*, 1; *Sweet Peas*, 1; *Stocks*, 1; a small collection of roses and two or three bouquets. Some of these, however, were very nice and nicely shown, notably the *Phloxes* which were shown in separate colors, this being a very desirable feature where it is at all practicable, because some shades of color in themselves beautiful do not harmonize well when shown together. The same to a certain extent might be said of the fruit, that is, that while good there was too little of it to make a proper showing. Might it not be suggested that our members, as far as possible, take up some special class or variety of plant, as has been done to each, and by devoting their attention more in the one channel secure greater perfection.

It is on these lines that the noted specialists in Europe (and may I mention our own Mr. Groff in *Gladioli*), have made world-wide reputations for themselves, and while we cannot hope even to emulate them yet there is more satisfaction in attempting little and doing that little well than by attempting too much, and by so doing fail even in pleasing ourselves. These remarks should not be brought to a close without referring to the regret

we must all feel in the small support we receive from our professional friends whom we would naturally expect be the leaders in these matters, the more particularly so from the fact that while there may be some trouble and no money in it, yet these exhibitions must tend much to foster a love for flowers which should ultimately be to their benefit and add greatly to our pleasure.

W., before Woodstock Society.

HAMILTON.—There was a fair attendance of members at the third annual meeting of the Hamilton Horticultural Society last evening in the Hamilton Association's room. President A. Alexander occupied the chair. J. M. Dickson, secretary, presented a satisfactory report of the society's work for the year. There were held ten general meetings and ten director's meetings. Six papers were read and several addresses delivered on horticultural topics. Two exhibitions were held, in June and November. At the first the expenses were \$115.76, and the receipts \$21.05, a loss of \$94.71; at the second the expenditures were \$84.55, and the receipts \$36.45, a total loss of \$142.81. Two distributions of premiums were made, one by the Ontario Fruit Grower's Association and the other by the Society.

The finances of the year were: Receipts, \$670.53; expenditures, \$528.60; balance in hand, \$141.93. There were 148 paid-up members on the books.

On motion of President Alexander, seconded by Frederick H. Lamb, the report was adopted.

The election of officers resulted in the election of A. Alexander, president, and J. M. Dickson, secretary.

The question of the composition of the board of parks commissioners was brought up by the president. Mr. Alexander said the Society had, at least, an interest in the selection of the board. The commissioners would have absolute power and the greatest care should be taken in their choice. They should be free from political bias and mercenary aims, and should have a natural taste for the beautiful and leisure to devote to the work of the board. He thought the society ought to recommend one or two names of men it thought qualified to act as commissioners. He could see there would be great difficulty in the aldermen agreeing on the six required from the large number nominated by the mayor.

Mr. Cauley was of opinion that the Society should assist in picking out the most competent men for the positions. He suggested Mr. Alexander and Mr. Kilvington.

Frederick H. Lamb thought it would be injudicious to name anyone.

F. B. Greening favored going through the list of nominations and suggesting six as the society's choice.

Robert Wilson was of the opinion it would be injudicious to mention names. A resolution asking that care be taken in the selection was all that ought to be sent to those who would make the choice.

Mr. Greening said he could not see how the council could take umbrage at the society making suggestions any more than against the Improvement society for its suggestions.

Finally, on motion of S. Aylett, seconded by F. B. Greening, it was resolved that a deputation from the society place twelve names of worthy men before Mayor Teetzel, with the suggestion that from them be chosen the required six. The officers and directors were appointed to make the selection of the twelve.

At the close of the business meeting the officers and directors met, and after unanimously re-electing J. M. Dickson secretary-treasurer, proceeded to pick the selection from the mayor's battalion of nominations. They proved to be these:

A. Alexander.
Frederick H. Lamb.
B. E. Charlton.
John Knox.
F. W. Fearman.
John A. Bruce.
J. G. Bowes.
J. J. Evel.
H. P. Coburn.
C. D. Dexter.
George Rutherford.
J. G. Y. Burkholder.

Rev. A. McLaren, J. Kneeshaw and Secretary Dickson were appointed the deputation to lay before the mayor the names selected on behalf of the society.

LONDON.—The inaugural meeting of the London Horticultural Society took place last night in the lecture room of the Y. M. C. A. The meeting was well attended and the proceedings were throughout of the most enthusiastic and harmonious nature. The new society enters upon its career under the most favorable circumstances, having already secured over 100 members.

The meeting opened about 8 o'clock with Mr. J. A. Balkwill in the chair, and Mr. W. E. Saunders acting as secretary. The first business was the election of officers, but before it was proceeded with Rev. Dr. Bethune was asked to favor the meeting with some facts as to the formation and advantages of horticultural societies, he having been a member of the horticultural society at Port Hope during his residence there. Dr. Bethune responded and threw considerable light on the subject. A number of new members were enrolled, and the election of officers was then proceeded with, resulting in the election of J. A. Balkwill, president, and R. W. Rennie, secretary.

The adoption of by-laws was then proceeded with, this order of business being greatly expedited by the fact that the act under which the society is formed provides certain by-laws that must be adopted. Considerable discussion was evoked by the fact that there already existed the District of London Horticultural and Agricultural Society, and it was feared that confusion would arise in the names. The president explained that the name of the society had been fixed by the government and that the other society would amend its name so as to avoid confusion. The object of the society, as set forth in the by-laws, is the encouragement of horticulture. Four public meetings must be held every year, at which flowers, plants, fruits, etc., may be exhibited by members and the public. Members of the Society are entitled to membership in the Fruit Grower's

Association of Ontario, and to participate in its advantages. The surplus profits of the society are applied to the procuring of bulbs, seeds, plants, etc., which are distributed free to members.

The first meeting of the directors will be called shortly by postcard, and they will decide on the dates for the four regular meetings of the year. Special meetings will also be held from time to time for the hearing of lectures from government lecturers and horticultural experts.—*London Advertiser*.

TORONTO JUNCTION.—The Toronto Junction Horticultural Society is the name of a new organization that promises to be of great usefulness.

The organization meeting was held in the council chamber of the Town Hall on Wednesday evening with a fair attendance.

Mr. A. Gilchrist, who had been authorized by the Deputy Minister of Agriculture to organize the society, called the meeting to order and presided until the work of organization was completed.

At the election of officers Mr. A. Gilchrist was elected hon. president and Mr. F. C. Colbeck, president.

In accepting office, President Colbeck expressed his thanks for the honor conferred upon him and referred to the importance of the work in which the society was to engage and promised to use his best endeavors to make the organization a useful one.

Mr. Gilchrist, after expressing his thanks for the society's mark of appreciation in electing him honorary president, referred to the very useful work the society could do in a young town like the Junction. He had thought of taking steps towards organizing it several years ago, but had been deterred by the then shifting character of the population. Now that there was a more permanent population he thought a great work could be done by such an organization, and he mentioned some of the ways in which it could make its usefulness felt, such as protesting against the destruction of beautiful trees or the burning of underbrush. The good roads movement was something that should have the co-operation of the society. An effort should be made to interest the children in the beauties of nature and he advocated giving prizes to encourage them in horticultural pursuits.

A resolution was adopted in favor of affiliating with the Ontario Fruit Growers' Association.

Regular meetings of the society will be held on the fourth Tuesday of each month, and if the consent of the council be obtained the meetings will be held in the Council Chamber.

WOODSTOCK.—Mr. Scarff, our director for that district, sends us the following clipping from the *Times* of Jan 11th:

Last night the annual meeting of the Woodstock Horticultural Society was held in the council chamber, with a good attendance of members. Interest seems to be growing rapidly in the work of the society, and the reports presented by the president and secretary last night were very gratifying indeed. The year just ended has been the

most successful in the history of the local society, and they will begin the new year with increased energy, and an endeavor will be made to interest more in horticulture.

The annual report of the president, Mr. D. W. Karn, was listened to with a great deal of interest. In it he referred with pleasure to the very satisfactory condition of the society at the present time, and said that a great deal of credit was due the secretary-treasurer, Mayor Jas. S. Scarff, for the success of the same. Mr. Karn also suggested to the incoming officials that a more determined effort be made to increase the interest in the monthly meetings, and at least every three months the meeting be so organized that they could have the attendance of the ladies in connection with the work. In retiring from the position of president Mr. Karn thanked all the members for their confidence, and complimented the society for the unprecedented report of the secretary-treasurer. Upon motion the report was carried unanimously.

The secretary-treasurer, Mayor Jas. S. Scarff, also presented his annual report. It was very gratifying to the members of the society to learn that they were in such good standing. The society was in a better financial condition for the beginning of the new year than ever before. The report read as follows,—

RECEIPTS.

Balance on hand from last year.....	\$ 70 71
Legislative grant.....	57 00
Members' subscriptions.....	99 00
Admission fees to exhibition.....	88 25
Commission from Ontario Fruit Growers' Association.....	19 40
	<hr/> \$334 36

EXPENDITURES.

Rent light of buildings and grounds, etc..	\$ 14 00
Meetings, lectures, etc.....	2 00
Periodicals.....	99 00
Purchase of seeds and plants.....	49 00
Working expenses.....	29 35
Printing.....	17 50
	<hr/> \$211 35

Balance on hand, \$123.01.

Messrs. D. W. Karn and G. R. Pattulo were elected to the offices of president and first vice-president, respectively, with Mr. J. S. Scarff, secretary-treasurer.

LINDSAY.—The annual meeting of the Lindsay Horticultural Society was held in the council chamber last evening, for the election of president, first vice-president, second vice-president and nine directors, receiving the annual report, etc., was well attended. The report showed an expenditure of \$182.15; balance in bank last year, \$103.57; income for the year, \$196; leaving a balance of \$117.42 to the society's credit. The president for the year 1900 is Mr. W. M. Robson. Last year this society distributed to its members \$76 worth of horticultural periodicals and about \$90 in trees and plants. This only shows some of the work of this society, which ought to recommend it to the people for their most generous support. F. J. Frampton, sec.-treas.

MITCHELL—As the result of a visit to this town by our organizer, Mr. Thos. Beall, of Lindsay, during the fall, a meeting was held in the town hall on the 10th inst. for the organization of a horticultural society. A society was duly formed with a membership of fifty-seven to start with. Following are the names of the officers elected:

A. D. Smith, M.D., president; W. Elliot, B.A., first vice-president; Mrs. W. Thomson, second vice-president, and T. H. Race, secretary-treasurer. The society is arranging for a public lecture sometime early in February.

LEAMINGTON.—The Horticultural Society's annual meeting took the form this year of a concert in the town hall last night. The president, Mr. Fraser, ably presided and before eight o'clock, the hour set, the large opera house was crowded to the doors by the most intelligent of our town's people.

Music was a leading feature of the entertainment and local talent was reinforced by Miss Huff, of Dresden, who kindly assisted. She has a very sweet and powerful soprano voice. She sang "Life's Dream is O'er," in duet with Miss Nuller, taking soprano; Miss Fuller alto. She

sang also two fine selections, and another in response to a hearty encore.

Our local prima donnas, Mrs. Manning and Miss Fuller sang beautifully. Mrs. Manning gave the appropriate piece, "Beautiful Flowers," and Miss Fuller rendered in her usual happy manner "The Highland Brigade." Mr. Edelsten, to whose push and enthusiasm the success of the function is largely due, sang with spirit the patriotic song, "Our Flag." Rev. Mr. Keith gave a fine reading. The orchestra, led by Mr. Maxon, ably accompanied by Mrs. Deming, Mr. Thorn and Mr. Ivan Russell, was of great assistance.

Miss Hanna Fuller and Miss Grace Smith also ably assisted in the accompaniments.

There were speeches more or less racy and relevant from Mayor Hughes, Messrs. Fuller, Johnson Hillborn McSween, Dr. Eede, Mr. Straubel, Mr. McKay and Mr. Lewis Wigle.

During the meeting over fifty members were enrolled, and at an after meeting the officers for 1900 were chosen: Hon. Pres., Dr. Hughes, mayor of Leamington; J. D. Fraser, pres.; J. L. Hillborn, 1st vice-pres.; E. E. Adams, 2nd vice-pres.; E. J. M. Edelsten, secretary.

Besides these there were nine directors and two auditors elected.

Our Book Table.

IRRIGATION AND DRAINAGE.—F. H. King, Professor of Agricultural Physics in the University of Wisconsin. 500 pp. Published by the Macmillan Co., New York. Price, \$1.50.

We have many books on fertilizing the soil, and a few books on applying water to the soil artificially, but these latter treat the subject from an engineering standpoint rather than the agricultural point of view. It is therefore opportune that a book of this character should be given the public by a writer who has made soil physics a life study. As the author pointedly states: "Most works on irrigation have been written from the legal or sociological standpoint or from that of the engineer rather than from the cultural phases of the subject. The effort is made here to present in a broad yet specific way the fundamental principles which underlie the methods of culture by irrigation and drainage. The aim has been to deal with those relations of water to soils and to plants which must be grasped in order to permit a rational practice of applying, removing or conserving soil moisture in crop production." The author opens with a discussion of the principles underlying the watering of land, which is irrigation, and the withdrawal of water from the land, which is drainage. These are two opposite methods of land culture, both essential, but of special utility, depending upon locality and rainfall. One of the valuable things strongly emphasized in this book is the necessity of securing a desirable physical condition of the soil in order to obtain the largest return from the land. The author has shown that good culture, which means good physical condition, may in large measure replace commercial fertilizers. In other words a good physical con-

dition of the soil is often mistaken for a "worn out" condition. The plant can only get hold of the plant food when the soil is in such condition as to hold a certain amount of moisture, air and humus. When these three agents are present the processes which attend the liberation of plant food are allowed to progress normally. He makes clear the fact that many so-called worn out soils are in reality poorly tilled soils. If no other point than this was brought out the book would have accomplished a worthy mission. In this way it is of special value to the eastern farmer. To the western farmer it is useful from the irrigation standpoint. It is well known that among the most productive lands on the continent are those lying in the arid or semi-arid regions of the west. The questions of how to conduct the water to the desired place and how to distribute it are of great importance. Bound up with these are those of economy as related to water supply and as bearing upon cost of application of water. The book, then, is divided into two parts: first, irrigation; second, drainage. In this way the principles enunciated have a wide range of application. It fills a distinct place among farm books and will undoubtedly be used freely in the college as well as the private library.

This volume makes an important addition to the Rural Science Series being edited by Professor Bailey. It is illustrated with a large number of half tone pictures and a smaller number of line drawings. While the mechanical make up is not quite equal to the preceding numbers of the series, it bears the unmistakable stamp of the Macmillans, which is usually a synonym of good book making. J. C.

QUESTION DRAWER.

Arrangement of Home Grounds.

SIR,—I have been much interested in the articles on landscape gardening which appeared in the "Horticulturist." I intend laying out my own grounds and thought of sending you a plan of ground for any suggestions you might offer.

A gravel ridge runs across the field and down into the bush. It is about four or five rods wide and higher than the land on either side. The barn is built against it and I have marked a site for a house on it.

The gate or driveway cannot be put any further west than is marked without having a hill to climb. The house being so far from the road I don't know what to put in front of it; a lawn so long would be too big. I would like you to suggest 1st. A driveway in from the road and position and

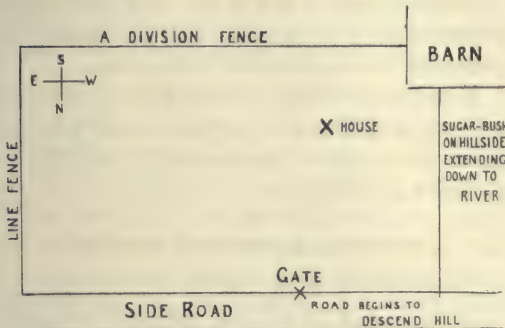


FIG. 1742.

course, whether straight or curving? 2nd. The house surroundings, the position and extent of lawn, the planting of trees and shrubs and what kinds?

The field is well protected from the west by a fine maple bush. The view from position marked for house is grand, especially to north. It is my intention to plant an orchard, having cherries and peaches on ridge, with apples towards the road. The soil is a good sandy loam, becoming more clay towards road. At present the only fixture is the barn. The field contains about seven acres. The distance from house to road is twenty rods, from house to barn about twelve.

SUBSCRIBER.

The following reply is given by W. H. Manning, Landscape Architect, Boston, Mass.:

SIR,—You ought to encourage such inquiries as you have referred to me, but in doing this you should insist upon their giving full information, otherwise no one can give them advice that will be of any real service to them.

About all I could say to your client would be

to make the general statement that it is usually unwise to locate a house on the summit of a ridge for it makes the building unduly obtrusive and roads to such a site will be more difficult to construct and maintain. It is generally better to locate at the side or at the base of a slope, reserving views from a higher level for occasional enjoyment or for enjoyment from upper windows.

A large lawn on such a place, as I take it your correspondent has in mind, would be burdensome to maintain. It would probably be better for him to enclose a smaller piece of ground with a retaining wall or irregular belt of shrubs which he would keep under the lawn mower, the adjacent land to be grazed or kept under mowing.

The roads should be made as short as practicable, and curves should not be used unless there is a very good reason for them.

Your correspondent would do well to provide a flower garden and keep all his annual flowers in it, also a service yard for laundry, etc., should be separated from the other parts of the grounds by a plantation. Plantations about the lawn should be arranged to keep as much open grass as practicable. Very few large trees should be planted near the house.

This is about all I can say to your correspondent because the information which he gives is not sufficient for one to gain a clear idea of the conditions.

Note by Editor: We very much appreciate the above pointers coming as they do from Mr. W. H. Manning, one of the best authorities in the United States on Landscape Gardening.

We understand that very soon Mr. Manning will publish a little book in which directions will be given for the preparation of Surveys of small Home and School grounds. The cost will be only 25 cents.

Another book which would be of much use to our correspondent is a hand-book for Plan-

ning and Planting Home Grounds, prepared also by Mr. W. H. Manning, and published by the Stout Manual Training School, Menomonie, Wis., price 35 cents.

The Flower Show.

SIR,—In our local Horticultural Society we are endeavoring to renew the interest this winter, and make it active for good in the community. To this end we wish to do all in our power to advance the culture of flowers, both in the town of Leamington as well as amongst the fruit growers and farmers. It is proposed we have a flower show early in the season, also at the fall fair.

Knowing, dear sir, that you have had experience along this line in your own town of Grimsby as possibly elsewhere, I should very much like a few suggestions from yourself. If you can reply at an early date I shall feel doubly grateful.

E. J. M. EDELSTEN, Leamington.

The flower show held by any affiliated society may be made a great success, and prove the source of immense encouragement to the society if properly managed. The object aimed at must be the encouragement of exhibits from amateurs, and by amateurs we mean every member of the society. We are well aware that without large money prizes in view, the professional florists will scarcely think it worth while to exhibit, and their exhibits usually formed the grand total of the old fashioned Horticultural Society's exhibits. In such cases, where was the amateur's exhibit; where the well grown begonias or geraniums from the dining room windows; where the coleus or fuschia, or the calla, which have been the joy and the ornament of the home? Certainly not at the exhibition, for each one will say, "I have nothing good enough to win a prize." The way to succeed is to interest all these people, even the person who has but one solitary plant. To do this, the directors must appoint a committee on exhibits who will visit the homes of the members and take a list of the pot plants they consider suitable, providing also labels for the name of the owner. Then on the day before the show, the directors should send out a man to collect the plants and bring them to the hall, where a floral committee will arrange them; and engage the same man to return the plants after the exhibition. This will cost some money, but it will pay

big returns every time, for each family who has a pet plant at the show will be fully represented among the visitors, and bring their friends along with them. The result will be an abundance of plants on exhibition, an abundance of visitors, and if a small fee of ten cents is charged all who are not members, the receipts will far over run all the expenses.

For the best results from an educative standpoint we would advise that a competent florist be always invited to attend, and be paid for his time, who would give information to all questioners regarding the correct names of the various plants, and the best care and treatment of them. In small towns or villages we would only have the show open one evening, possibly admitting the schools from 4 to 6 p. m., and the general public from 7 to 10 p. m., and providing some orchestral music to enliven the occasion.

It is by no means necessary to confine the exhibits to flowers; for vegetables and fruit are quite as much in place among horticultural products as the flowers.

Profitable Apples for Lambton.

SIR,—I am thinking of planting an orchard on Lake Huron near Forest, Ont., and as you have been referred to me as good authority to consult as to variety most adapted to that section of country, also how to plant them, distance apart, etc., I concluded to write you for particulars. Of course I prefer the most profitable apple for market as that is my intention to make as much out of the investment as possible. Would you recommend planting plums between the apples or will it pay to do so? Can I find a market for them? Would also like the names and addresses of some of the reliable nurseries in Ontario. If you will please favor me with the above information I will be very much obliged.

W. RAWLINGS.

Our correspondent need not be in the least limited in his choice of varieties of apple trees for planting in West Lambton. Providing he has suitable soil and other local conditions, he can grow any of the finer varieties he chooses. As to the most profitable apple for market no definite answer can be given. Some seasons the Northern Spy is the most profitable, when it ripens a firm flesh, a clean skin and a high color, but in other seasons, like the present, it decays too early, and is too small and irregu

lar in size to be very profitable, unless in exceptional instances. Sometimes the Baldwin is the most profitable, when it gives a good yield of fair sized fruit, of high color, and firm enough to ship anywhere, but of late this variety has developed a bad habit of barrenness, and seldom yields a full crop. The Greening was once counted by many the most profitable commercial apple, sometimes giving immense yields of beautiful fruit. One fine old tree at Maplehurst yielded one season twenty barrels of marketable apples. Of late, this variety too has developed faults, in some cases being badly affected with apple scab, while its green color gives it a disadvantage on sale. The King sells for the highest price of any apple we grow, but unfortunately is no cropper, unless it should prove productive when set on Spy or some other stock. The Cranberry Pippin is a fine export apple when well grown, but some seasons it is warty and misshapen. The Ben Davis is a wonderful cropper in most places, and looks well on the market, but lacks quality. Ontario is fine every way, but the tree overbears, and is short lived. Ribston Pippin is also first class, but inclined to ripen too soon after coloring up, and the tree has very little vigor in Ontario. Blenheim Orange and Gravenstein are two very fine fall apples, probably the two best of their season. The fact is that the ideal winter apple for commercial purposes has yet to appear.

For particulars regarding methods of planting we refer our inquirer to Mr. Burrell's article on Fruit Culture in this number, which deals with that subject so well that we need not treat upon it here.

Sheldon Pear.

SIR,—On page 423 Horticulturist I saw a statement concerning the above named pear which I cannot fully agree with. As I live in the County of York, about twenty-five miles north of the City of Toronto, just about two miles south of the ridges, which makes the water shed of all the running streams north and south of this part of the country, we are very much exposed on all directions to the wind. We have a heavy clay soil mixed with black muck, very strong land. I have been trying to grow pears nearly thirty years and have a good many different kinds, and my Sheldons are doing equally as well as any other kind.

I have some Sheldons top grafted which are now about 25 feet high and not even a twig injured yet by our piercing winter winds and frost. I have also some younger trees got from the nurseries which are now fine thrifty trees, bearing as well as the other kinds growing beside them. The ground where the old trees are growing is not cultivated, it is completely sodded over. The only fault I find is the unevenness of the fruit.

I would advise anybody in our district to plant a few Sheldons, as they are no more difficult to grow than any other kind as far as my experience goes. The quality is very good, as stated in the Horticulturist.

Almira.

D. B. HOOVER.

We are pleased to have this opinion of Mr. Hoover's regarding the adaptability of the Sheldon pear to the County of York. Sometime ago we had some unfavorable reports concerning it from the fruit growers in York, which led to our remark that it was not quite hardy in York, which such testimony as Mr. Hoover's seems to contradict.

Sun Scald, Etc.

SIR,—Do you know anything of a preparation called Glen's Arborine to apply to fruit trees said to protect from rabbits, mice, sheep, borers, sun scald, etc. Agents are canvassing for its sale. Is it good for anything or a hoax. I have lost a great number of young apple trees from what I supposed to be sun scald, the bark dies on the south or westerly sides of the trunk of healthy trees, beginning on a small piece an inch or two in diameter, and each year enlarging until it kills or greatly damages the tree. It attacks a tree generally at the bearing age, sometimes the bark on the whole side of the trunk is killed in a season. Often the branches of old trees are affected in the same way. What is the cause and what will prevent it? I am very much discouraged by its ravages. My land is a heavy clay loam. We had nothing of it sixty years ago. Your reply through Horticulturist will much oblige.

WILLIAM A. WALLIS.

Humber P. O., Ont.

Glen's Arborine is dealt with in a separate paragraph, and need not be treated here, except than we warn our readers against paying money for new patent nostrums which, when tested, usually prove inferior to the usually accepted remedies.

Sun Scald is a very common trouble with apple trees in Canada where we have intensely hot sunshine in summer, and trunks or crotches unprotected by foliage. Probably the most common cause of the evil occurs in winter sea-

son, when the bark becomes more or less frozen by intense cold, and this is followed by a sudden change, and a hot sunshine upon the frozen bark causes ruptured cells and vital injury to the part affected. We know of no remedy, but

the evil might be prevented by protection of the crotches and upper sides of the limbs from the rays of the sun. We have found the King and the Spitzenburg especially liable to this evil

Open Letters.

Importation of Nursery Stock.

SIR,—I see by reports in late editions of your paper that nurserymen and fruit growers in your vicinity are still urging the Government to continue to prohibit the importation of nursery stock from the United States and compel nurserymen here to fumigate all home grown nursery stock before selling. These laws militate in favor of large growers of trees who do business mostly by agents, and against smaller growers whose business is mostly local, and also against the general planter who has to pay higher prices on account of said prohibition and fumigation, and judging by the names as given of those who had those meetings, they are the large growers of nursery stock and fruit growers who are inspectors and draw Government pay, and others whom they scare by stories of the terrible ravages of the San Jose Scale. I don't believe that the scale is half so bad as those inspectors would have us believe, who go about the country with their pockets full of bottled vermin, which they exhibit while in gardens and orchards where danger of spreading is greatest, and if it is such a serious pest it can be overcome by spraying the same as other scale and bugs and things.

I was glad to find that Mr. Dearness, one of the Government Commission, was of the same opinion as myself, and in the January 6th issue of *American Gardening* you will find a writer saying that he has proved that spraying with crude Petroleum will entirely destroy San Jose Scale without in the least injuring the trees.

A nurseryman who does a large business by agents can quit selling by April the first, have a large fumigation house, dig all his trees

and fumigate them all at once, and ship and deliver at the proper time.

The small grower does business differently. He depends on the farmers and fruit growers in his vicinity to come in and get what they want. When spring opens they are very busy, and when they call for trees they are in a hurry and rather than wait to have their stock fumigated they will go home without it and not likely return, so we have in such cases to lose the sale or break the law. When a man has a certificate from a Government Inspector that his nursery is clean and has pressing bills to meet, which should he do? Laws should be framed so as to make it as easy to do right and hard to do wrong as is consistent with the public good.

I would be in favor of having competent inspectors inspect the nurseries twice a year at the owner's expense; give the clean nurseries a certificate to that effect on which they could do business without hindrance, where scale is found put a man in charge till every vestige of the same is destroyed. I also favor the importation of stock from Northern States when accompanied by certificate subject to inspection when opened here.

When the prohibition law was put in force nurserymen said prices would not be increased. But we find in some lines this year prices double what they were three years ago. The fact is there are not half enough apple trees in the country to supply the demand, and nurserymen are not slow to take advantage of the fact to raise prices when they can so easily get an advance.

Yours truly, A. W. GRAHAM.

Nurseryman and Fruit Grower, St. Thomas, Ont.



FIG. 1744. WHITE FRINGE.

On grounds of Mrs. J. Wilson, Niagara Falls. (See Garden and Lawn.)

THE CANADIAN HORTICULTURIST

Vol 23 1900 No 3

** MARCH **

THE CODLING MOTH.



FIG. 1745.

(Picture from Lodeman's "The Spraying of Plants,"
by permission of The Macmillan Co.)

NOTWITHSTANDING the formidable list of new and dreadful orchard pests, including the much talked of San Jose Scale, it is doubtful if we have any plague at the present time so alarming as the Codling Moth.

In orchards of the southern parts of Ontario, where there are two broods each year, the moth is increasing so rapidly that in un-

sprayed orchards fully one half, and often even two-thirds of the apple crop is rendered unmarketable by its ravages. Twenty years ago a very few apples would be rejected in packing on account of Codling Moth; now it threatens to destroy the whole crop of the careless orchardist.

For some years past, Mr. W. M. Orr, of Fruitland, President of the Ontario Fruit Growers' Association, has been experimenting with bands upon the trunks of the apple tree for the trapping of the Codling Moth, with marked success, and has been exhibiting at our meetings, and at the Industrial Fair, samples of these bands which had been used, and were full of larva. At Whitby a committee on Codling Moth was appointed, which has since drafted and presented before the Provincial Minister of Agriculture the following outline to serve as the basis of an Act of Parliament:

THIS ACT MAY BE CITED AS THE CODLING
MOTH LOCAL OPTION ACT.*

THE OBJECT.

1. It shall be the duty of every occupant, or, if the land be unoccupied, of the owner of such land, to place bands (as hereinafter described) upon all

bearing apple and pear trees and upon all orchard trees of bearing age within forty feet of such bearing trees (here might be embodied the age of tree or bearing age) for the purpose of destroying the larva of the codling moth.

THE BANDS.

2. The bands shall be made of "Burlap" or "Sacking," or such other material as may be considered suitable, and shall be not less than four or five inches in width and three thicknesses, and be securely fastened at a convenient point between the crotch and the ground.

THE DUTY OF THE OWNER OR OCCUPANT.

3. He shall remove said bands and carefully inspect and destroy all larva found therein and replace the bands, and continue the regular inspection thereof at intervals of twelve to fourteen days during the months of June, July and August, commencing on the 15th of June and ending on or about the 20th of August.

ADOPTION OF ACT.

4. The council of any municipality who may adopt the provisions of this act shall enforce the provisions thereof in the manner hereinafter described. They shall cause to be distributed to each owner or occupant of land within the municipality a copy of this act, not less than one month before the provisions of this act shall become operative. They shall also distribute to the same persons a sufficient number of blank forms of declaration to be filled in and signed by the said owner or occupant, setting forth the day upon which he performed the work and certifying that the work had been well and carefully done.

APPOINTMENT OF INSPECTORS.

5. The said council adopting the provisions of this act shall appoint an inspector or (in case of the council considering it more expedient for the efficient and economical carrying out of the provisions of this act, a division of the municipality) inspectors.

DUTY OF INSPECTOR.

6. The inspector shall at regular intervals, collect the forms of declaration and inspect the work done and, if neglect has been clearly shown, shall cause the work to be well done and the cost thereof to be levied as an extra tax upon the said property.

*NOTE.—The matter of penalties, appeals and remuneration is left by the committee to the Legislature to define. The committee would suggest that the party performing the work should state approximately on the form of declaration the number of larva destroyed at each operation for the encouragement of other municipalities who may contemplate the adoption of this act.

The Hon. John Dryden is prepared to do anything in his power to assist in the matter, and only needs further consideration of the methods advised before taking action.

Slingerland, of Cornell, in Bull. 142, says:

"We will hazard an estimate at the annual tribute which our New York apple-growers pay for the ravages of this pest. The average annual crop of apples in New York now amounts to about

5,000,000 barrels; as \$1.50 per barrel would seem a fair average valuation, the total valuation of the annual crop may be estimated at \$7,500,000. Although many New York fruit-growers are fighting this insect with modern methods, we think that the wormy apples would constitute at least one-third of the total crop. That is, New York fruit-growers yearly furnish \$2,500,000 worth of apples to feed this insect; and there must be added to this at least \$500,000 worth of pears (certainly a low estimate for New York) which the same insect renders worthless. This makes a tax of \$3,000,000 which a single insect levies and collects each year from the fruit growers of our state."

Now Ontario follows closely upon New York State in the production of apples, consequently the loss with us from codling moth would be somewhere between two and three million dollars.

For a long time it has been supposed that the egg of the codling moth was deposited in the basin of the apple, under shelter of the calyx, but Slingerland says, "During the past two years we have seen hundreds of the eggs on apples in New York orchards and have never yet seen one on or down in between



FIG. 1747.
EGG OF CODLING
MOTH AT b.

the calyx lobes. Most of the eggs we found were glued to the skin, apparently without much choice as to location, on the smooth surface of the fruit as shown in fig. 1747. The eggs have been aptly characterized as resembling a minute drop of milk adhering to the skin of the fruit. The egg is a thin scale like object, not quite so large as the head of a common pin, and is of a semi transparent whitish color, often with a yellow tinge, which is sometimes quite pronounced. Unless one has seen the eggs they could not readily be discovered on an apple; the one on the apple in fig. 1747 was unnaturally whitened to bring it out in the reproduction."

From careful observations made by Gillette, of Iowa, and Lord, of Nebraska, it ap-

pears that in the latitude of Ontario the first eggs are not laid until a week or more after the petals have fallen, or ordinarily the last of May and the first half of June, while Goethe, of Germany, has shown that most of the eggs are laid at night.

The newly hatched apple worm is so tiny that it can be observed with difficulty, being only about $1/16$ of an inch in length and semi-transparent. It seldom enters the apple at the place where it hatched out of the egg, but crawls about till it finds the blossom end or some other partially protected part, and here it takes its first meal, which is a tiny portion of the outer surface of the fruit, and then after a few hours it begins to enter the apple. Card found many eggs upon the leaves, and the natural inference is that in such cases the young moth feeds at first upon leaf tissue. These observations all help to make it clear how it is that spraying the young fruit and the foliage with Paris green is often effective in lessening the ravages of the codling moth.

The worm sometimes leaves the fruit before it falls, and the worm emerges and seeks a suitable place to transform, either under the loose bark of the trunk or crotch of the tree, or on fences, rubbish piles, or stumps, any where, says Mr. Slingerland, except in the ground.

In regard the number of broods, Fletcher, of Ottawa, reported in 1895 "that careful observations made during ten years convince me that in this part of Canada there is only one regular brood of this insect in the year. This is, I believe, the case as far west as Toronto. In the fruit growing districts of (South) West Ontario there are two broods, the second brood being invariably the most destructive."

There are a number of insects which prey upon the codling moth, but the birds are the chief friends of the orchardists in this work, especially the downy woodpecker, blue bird, crow, blackbird, kingbird, swallow, sparrow,

wren, chick-a-dee and jay. Riley and Walsh state that "almost all the cocoons of the moth that have been constructed in the autumn at the trunks and limbs of apple trees, are gutted of their living tenants by hungry birds, long before the spring opens." "And yet," says Slingerland, "enough codling moths succeed in running the gauntlet every year, and allow it to take rank as the most destructive apple pest in nearly all parts of the world."

Trapping the worms by bands on the trunks was first practiced by Dr. Trimble in 1864, when he devised his famous hay rope band which was often renewed, and the old bands full of worms burned up (see Fig. 1745). This was a method much practiced in Michigan between



FIG. 1745. THE HAY-ROPE BAND IN OPERATION.
Reduced from Dr. Trimble's Picture

1870 and 1880, where it is said a noticeable improvement was the result.

Recently more attention is being given to bands as a means of checking the codling moth, and it has been found more convenient to use bands of sacking, as proposed by Mr. Orr, than the old fashioned hay bandages. These can easily be applied by driving a tack through the lapped ends or by tying with a cord. During July and August the bands must be examined every ten days and the cocoons destroyed, and the whole expense need not exceed four cents per tree. If as is stated, this will capture half the full grown worms each season, the result would surely be evident in a few years, especially if whole townships were to undertake con-

certed action as proposed in the report of our committee.

In addition to the trapping with bands, each grower should faithfully practise spraying with Paris green, for by this means he will destroy a large number of the worms in June before they begin their destructive work.

Slingerland says on this point :

" Facts and observations lead us to believe that in applying a poisonous spray soon after the blossoms fall, we deposit some arsenic in the calyx-cavity where nature kindly takes care of it for us until ten days or two weeks later when the little

tion must be made soon after the blossoms fall, when the calyx is open, as shown in figure 1746. If we wait a few days until the calyx has closed it will be too late. We can conceive of no possible way in which a majority of the 15 or 20 per cent. of the worms which enter the fruit at some other point in the spring, and all of the worms of the subsequent broods, can be effectively reached with the poison spray."

Experiments made by Forbes & Lodeman go to prove that as a rule two sprayings are sufficient, one just after the petals fall and a second a week later.

With pears the spraying appears less



FIG. 1748. *Just right to spray. A pear and two apples from which the petals have recently fallen. Note that the calyx lobes are widely spread. Copied from Cornell Bulletin.*

apple-worm includes in it the menu of his first few meals. Furthermore, this poisoning of these young worms which enter the developing fruit in the spring, seems to be the only way and the only time that the insect is or can be the most successfully reached with the spray; as the worms sometimes eat through into the calyx-cavity from the outside at the base of the lobes, and as some of the poison often lodges here, possibly a few of them get enough poison to kill them at this point. Not enough of the spray can be made to stay on the surface of the fruits then or at any subsequent time to reach one in a hundred of the worms which enter elsewhere than at the blossom-end. Put in another way, the above facts mean that we can hope to reach with a poison spray only those apple worms which enter the blossom-ends of the forming fruits in the spring. To do this, the applica-

effective than with apples, perhaps because it is the second brood does them the most injury, and this brood, whether on pears or apples, cannot be reached to any great extent with poison spray. Slingerland thinks that with thorough work we can often save at least 75 per cent. of the apples that would otherwise be ruined by worms, and for those which escape and from the nucleus for the second brood, there is no better plan than to trap as many as possible with the banding system.



FIG. 1749. THE APPROACH.

LANDSCAPE GARDENING—III.

ROADS and walks are not in themselves objects of beauty; they are essential to secure convenient and comfortable access to the buildings and parts of the grounds. To secure the least amount of road that will serve this purpose properly, and to so arrange it that it will not be too obtrusive, or cut up the broader open spaces too much, or destroy important natural features, and at the same time secure easy grades and graceful curves, is one of the most difficult problems the landscape architect has to deal with. It is in most cases decidedly better to have the main entrance to the house on the side away from the lawn. This is contrary to the general practice. The lawn should be the quiet, restful side of the house—the homeside—and should not have an avenue or turn, and the frequent coming and going of carriages and people between it and the house. A main approach direct to the entrance of the house must be provided, and branching off from this at some distance from the house, or often entirely independent of it, there should be a secondary approach to the kitchen yards and stable. The approaches should be as direct as practicable. When it is necessary to cross the lawn, the grad-

ing can often be so managed as to hide the road from the house, and give the lawn the appearance of being unbroken. Steeper grades than a rise of one foot in fifteen should be avoided in roads, and one foot in ten in walks. The curves should be gentle and be made with an evident reason. Unnecessary curves in roads or walks are always very suspicious. For some places a straight entrance and formal treatment is preferable to curved lines and a more natural treatment. Only such walks as are required should be provided. An approach to the house independent of the drive, and walks in the gardens and to the buildings are usually all that is necessary. A walk around the lawn is often unnecessary and unsightly; in wet weather it would not be used, and in dry weather the grass is pleasanter to walk upon. Roads should be wide enough for teams to pass each other, or they should be so narrow that it is evident they cannot pass, say ten feet. Twelve feet is deceptive, fourteen feet will do, but sixteen feet is better. Three teams could not pass in eighteen feet; in twenty-one they could. The width will depend upon the arrangement of roads, the amount of passing, and the character of the passing.



FIG. 1750. LANDSCAPE ART ON BANKS OF THE HUDSON.

A fashionable family with many friends and a visiting day, will need a road wide enough for coaches to pass. If roads and walks are thoroughly constructed in the beginning, on proper grades, and the water is kept off of them, much labor and expense will be saved later in repairs.

Grading, whether the changes in the natural surface are many or few, is an important matter, especially on those parts which are not to be planted. A graceful and natural fitting of the new surfaces to the old requires some skill. A gently undulating surface and long, gentle slopes are more natural, more pleasing, and more easily cared for than short, steep slopes. In nature, abrupt slopes with sharp angles are seldom seen in free soil which is undisturbed by heavy bodies of water. Nature's process is to gradually wear off the sharp, upper edge and fill it in at the abrupt base. The result is a curve gradually running into a reverse curve—an ogee curve as the builder would call it—and it is such a curve that should be imitated in lawn grading. A for-

mal terrace, when used, may be defined by a wall or a terrace bank. Such

a bank should be distinctly formal, with its angles sharply defined and slope flat—not a mongrel with a curved top and an angular base. Very steep and abrupt slopes are sometimes necessary. They can often be filled, and held in place, with heavy, natural boulders, and planted to imitate, so far as possible, a similar slope in nature. It is very desirable to secure a shallow turf gutter at the base of a bank sloping toward the road to prevent the water from flowing on to the gravel surface. The water can be intercepted by occasional catch basins, and carried across the road, if it is on a sidehill, or disposed of by drains.

Where a permanently vigorous and luxuriant growth of plants or a constantly fine turf is required, deep trenching or plowing and liberal fertilizing is essential. It does not follow, however, that poor or barren land cannot be covered with a pleasing growth without this thorough preparation. The luxuriant clothing of barberry, sweet-fern, wild rose, and other plants on the

sandy and gravelly soil of the exposed seashore and also inlands is sufficient evidence of this.

Drainage and the disposal of house wastes are important matters that must be considered in the plan of a place and provided for during construction. With a satisfactory fall and outlet (for which you will sometimes have to seek permission to go through your neighbor's land) the drainage of a wet surface is not difficult to secure. A satisfactory disposal of sewage is more difficult. A leaching cesspool is the usual vehicle, a very unsafe and in many soils unsatisfactory method. A tight cesspool periodically emptied is more expensive to maintain, but safer. There are safe but somewhat complicated methods of disposal by sub-surface, or surface irrigation, which can often be used to advantage. Of course, if there is a sewer the disposal is a simple matter.

Planting, which is so often looked upon as the principal work of the landscape architect, is, as I hope I have made evident, only one of the details—a very important one, it is true, but after all only the dress and ornament of the place.

There are many thousands of species and varieties of hardy plants in common cultivation in the north-eastern United States. Of woody plants alone there are between four and five thousand species and varieties that are offered in foreign and American nursery catalogues, three-fourths of which would probably survive ordinary winters at Boston under favorable circumstances. Many of these are interesting only to the botanist, and of no value to the landscape architect, but a knowledge of all that may be of value—a very large number—will enable him to produce results and secure effects that cannot possibly be secured by a man with a more limited knowledge. While the great variety that is available gives an opportunity to produce interesting details and a much longer season of flower and more interest-

ing winter effects, it is also a great source of danger, for it constantly offers the temptation to use too large an assortment, which will result in a mixed planting with no character or individuality, and also in the introduction of many things that are not adapted to the soil or surroundings, the failure or poor success of which will give the whole planting a shabby, patchy look. It is safer to select a few reliable vigorous varieties, having good, healthy foliage through the season—they are more apt to be natives than exotics—and let them predominate in the planting; then add to its interest, if it is in a place where it is desirable to have interesting details—that is, where it frequently comes under close observation—by using a greater variety of native, exotic, or garden forms of woody plants, or hardy perennials. A large variety in a border which is to be seen from a distance is entirely lost to the eye, or gives an undesirable, mixed, or patchy look, and adds largely to the expense. If it is made mainly of a few kinds, as we see in nature, the most effective and pleasing results can be secured. A low border plantation made up of the flowering dogwood, with a few of its red flowered variety, the panicle dogwood, clethra, and wild rose,—all natives—would give a better result than the same number of exotic varieties, or if the variety were increased many times. If it were desirable to have more interesting details, large masses of loosestrife, golden rods, asters perennial sunflowers, and the like, would give it without detracting from the effect of the woody plants.

The use of colored foliage in a lawn planted in a natural way seldom produces a pleasant result, though I should not say that it cannot be used. To a person of refined tastes a gaudy, yellow piece of furniture in a finely furnished and decorated room, the prevailing color of which is green, would be offensive. It would mar the enjoyment one

would take in a tasteful and harmonious room, for it would be impossible for him to banish this conspicuous object from his eye or his mind. But a bit of yellow ribbon or bric-a-brac in the same room could be used to draw the eye to some particular nice feature to which this bit of color would give life and vivacity. If the same good taste that is applied to the decoration of a room be applied to the grounds, the brilliantly colored garden forms would be used less than they are now in the lawns, and be confined more to the garden. If one prefers not to have the quiet restfulness of the lawn, and cannot appreciate the refined beauty of natural

shrubs with their ever varying tints of green, their graceful outlines, their wealth of flow-

Boston, Mass.

ers, their luxuriance of foliage, but prefers to make a flower and foliage garden of all his place, very gorgeous and striking combinations of color and outline can be secured with garden forms, — more striking and showy than any we ordinarily see, for there are many interesting varieties which are little known and less used. Do not understand me to disparage a garden. I think every place should have one, and that it should be made as interesting and attractive as possible, but I do not think it a good thing to spread it over the place. A brilliant garden is as attractive as a brilliant bit of autumn landscape, but an autumn tinted landscape throughout the season would soon make one long for something green to look upon.

W. H. MANNING.

(To be Continued.)

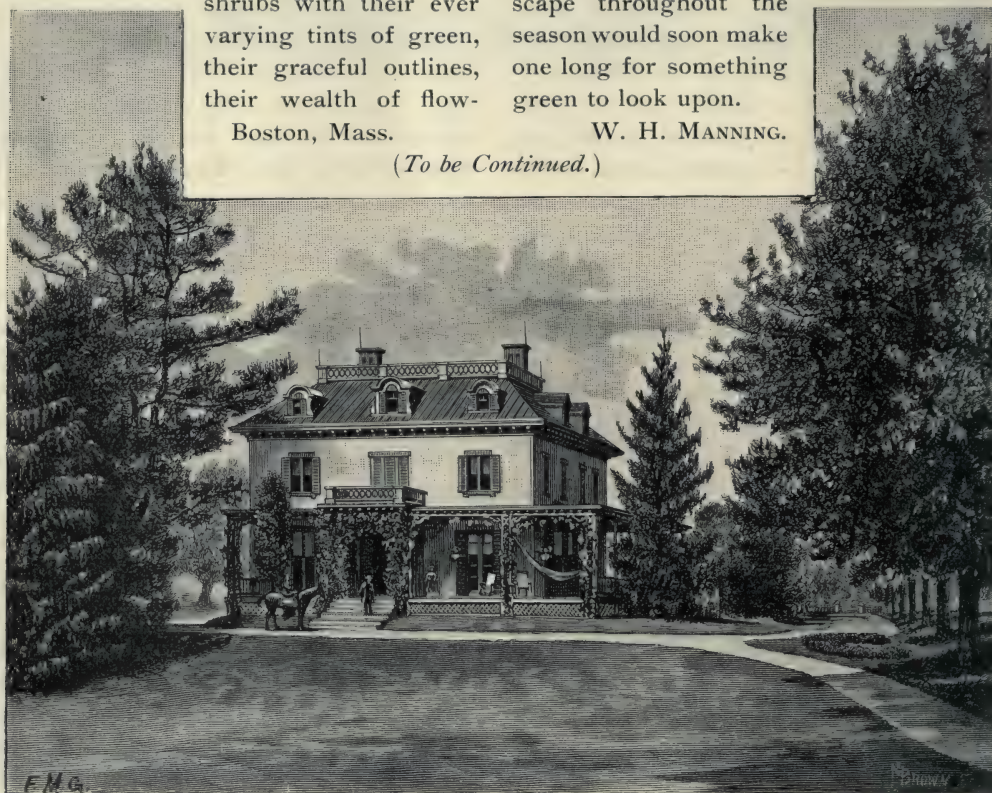


FIG. 1751 A HOME ON THE HUDSON.

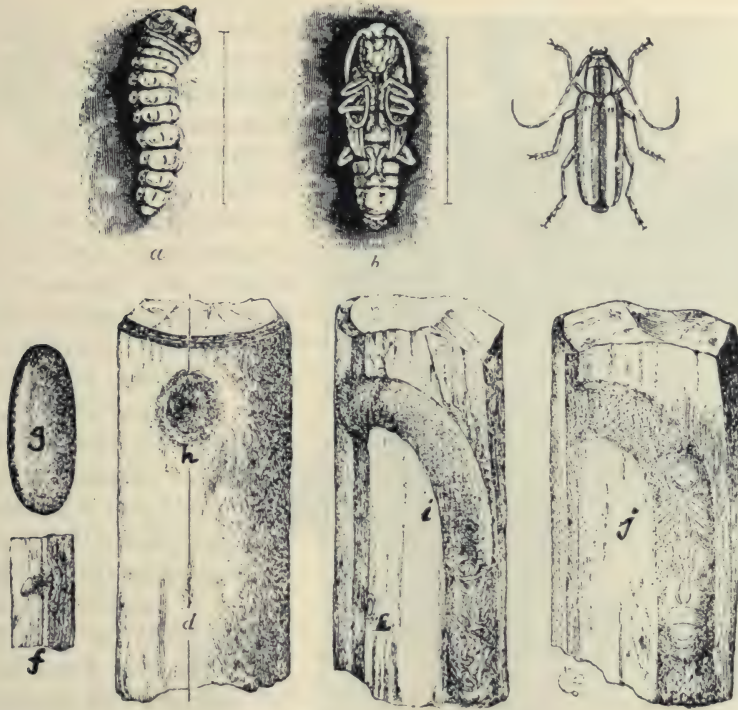


FIG. 1752. ROUND HEADED APPLE TREE BORER—*a*, larva or grub; *b*, pupa; *c*, adult beetle: *d*, puncture in which egg is laid; *e*, same in section; *f* and *g*, eggs; *h*, hole from which beetle has emerged; *i*, tunnel in wood; *j*, pupa in its cell in tunnel prior to emerging.

THE CARE OF SHADE TREES—II.

IN a previous article I dealt briefly with the physiological conditions which affect the healthy, vigorous growth of shade trees. In this present article I shall deal with the insects which work injury to these trees.

The insects which attack trees may be divided into three groups, viz., *Borers*, *Leaf-eaters*, and *Sap-suckers*. The Borers are chiefly the grubs of beetles; the Leaf-eaters are chiefly lamellicorn beetles, and the caterpillars of certain moths, and the Sap-suckers are hemipterous, or half-winged insects. A knowledge of the life-history of these injurious forms is of great service in the fight against them, and can readily be obtained by a reading of the standard works on Insects.

1. The chief Borers are the *Round-Headed* and the *Flat-Headed* Borers. The *Round-Headed Borer* (*Saperda candida*) is perhaps well known to many of the readers of this magazine, but for the benefit of those who are not yet acquainted with the pest, I shall give a few facts about its life-history and general appearance.

The beetle is about an inch in length, and has a broad, white stripe running lengthwise along each wing-cover. The general color of its upper surface is light brown. Its feelers are quite long and jointed. The grub is over an inch in length when full-grown, and has a peculiar shaped head, which is quite characteristic, rounded, and much greater in diameter than the body. The



FIG. 1753. WORK OF BORERS ON MAPLE SHADE TREES.

pupal condition is seldom seen, because it does not remain a pupa for any length of time. (FIG. 1752.)

Near the end of June the beetle lays her eggs close to the ground on the trunk of the tree, under some loose bark. The young grub or larva eats its way through the bark into the sap-wood, where it remains usually a year, then it bores upwards into the hardwood, whence it emerges as a beetle after a sojourn of nearly three years. The last month prior to emergence from the tree is

spent as a pupa at the upper end of its burrow. The tunnel in the sap-wood is flat, and is usually nearly filled with sawdust castings.

The beetle emerges about the middle of June, and proceeds with all dispatch to prepare for the laying of the eggs. Figures 1753 and 1754 show very clearly the characteristic markings these beetles make upon trees. The owner of the trees tried to cut out the grubs, but this method produced the ugly, big scars which made the trees unsightly. The adoption of this method of treatment, supposes that an ugly shade tree is preferable to a dead or dying one. The best remedy is a combination of preventive and destructive measures. In the fall the trees should be carefully examined, and wherever there are indications of sawdust, the tunnels should be probed with a stout wire so as to kill the grub. Again in June the trunks of the trees should be treated with a



FIG. 1754. WORK OF BORERS ON MAPLE SHADE TREE



FIG. 1755. FLAT HEADED BORER—*a*, larva or grub; *b*, adult beetle.

mixture which will prevent the deposition of the eggs. A carbolic soap mixture, made by adding a pint of crude carbolic acid to a quart of soft soap dissolved in two gallons of boiling water, applied with an old scrubbing brush, has been found very effective. A white-wash applied on the trunk and well up into the branches is also to be recommended.

The *Flat-Headed Borer* (*Chrysobothris femorata*) is almost as destructive as the *Round-Headed Borer*, and has a very similar life-history. In appearance however, it is quite different. The beetle is about half an inch long, flattened, and of a dark green, bronzy color. (Fig. 1755.) The grub or larva is light yellow in color, about an inch in length, and with a very conspicuous head, which is flat, and very broad compared with the body.

Usually it does not take so long for this insect to pass through the various stages of its life-history as is the case with the *Round-Headed Borer*. The period varies from one to three years, generally one year. As in the case of the *Round-Headed*, the beetle deposits her eggs about the end of June. The young grubs bore into the sap-wood where they tunnel out flat channels, sometimes girdling the tree. These tunnels are not so regular, and do not penetrate so far into the hardwood as do the tunnels of the *Round-Headed Borer*.

As a rule the eggs are deposited on the trunk a few feet from the ground.

The same remedies may be used against these pests as have been found effective with the *Round-Headed Borer*. Prof. Comstock advises the placing of one or two cakes of

soap in the forks of the trees, so that the rains will dissolve the soap and wash it down over the trunks.

It may be said here that these two borers are not only destructive to shade trees, but also to apple, quince, and pear trees.

There are other borers which also do much harm. The *Locust Borer* (*Cyrtene robiniae*) is destructive to locusts in some localities. The beetles of these may be collected quite readily on Golden Rod in the fall. They are black with many yellow bands crossing the

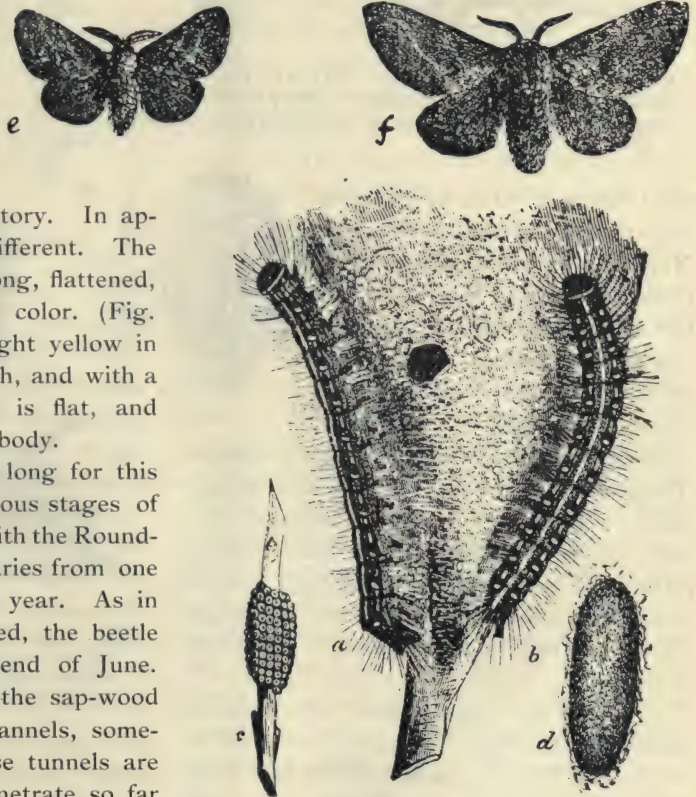


FIG. 1756. AMERICAN TENT CATERPILAR—*a* and *b*, caterpillars on nest; *c*, egg cluster; *d*, cocoon; *e*, male moth; *f*, female moth.

wing-covers. Many locust trees can be found whose trunks are perforated by holes made by the grubs of these beetles. The holes extend through the bark into the hardwood, injuring the trees so badly that death

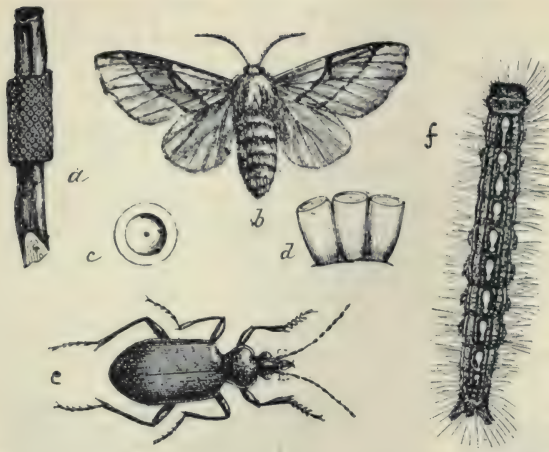


FIG. 1757. FOREST TENTLESS CATERPILLAR—*a*, egg mass; *b*, moth; *c* and *d*, eggs; *e*, fiery hunter beetle, which preys upon the eggs and caterpillars; *f*, caterpillar.

soon follows. The grubs complete their full growth in one year. Much can be done in the winter to rid the trees of these and like borers by cutting off all dead and dying branches, and burning them before the insects have a chance to escape.

Maple trees are often troubled with borers (*Plagionotus speciosus*), which are closely allied to the Locust Borer. This beetle is a very pretty creature, being marked with yellow and black stripes. The eggs are laid in summer, and the grubs bore into the wood, where they may be destroyed by a stout wire in spring.

2. The chief Leaf-Eaters which infest shade trees are the *Tent* and *Tentless caterpillars*, the *Tussock caterpillar*, the *Fall Web-worms*, and the *Bag-worms*, all of which are larvæ of moths.

The American *Tent* and the *Forest Tentless Caterpillars* (*Clisiocampa Americana* and *disstria*), are doubtless familiar to most readers. The accompanying figures (Figs. 1756 and 1757) show the characteristic features of the eggmasses, larvæ, tent, and moths. Much may be done to lessen the ravages of the Tent

caterpillars by the destruction of the egg-masses in the fall, winter, and spring, and by burning the tents as soon as they appear in the spring, but there seems no practicable method of dealing with the Tentless caterpillars, which come from the woods to the orchards and lawns. These make their home primarily in the forests, where it is impossible to clear off the egg-masses.

All shade trees should be sprayed, as soon as leaves are opened, with arsenate of lead solution, made by dissolving in a wooden pail three ounces of acetate of lead in one quart of water, and in another wooden pail dissolve

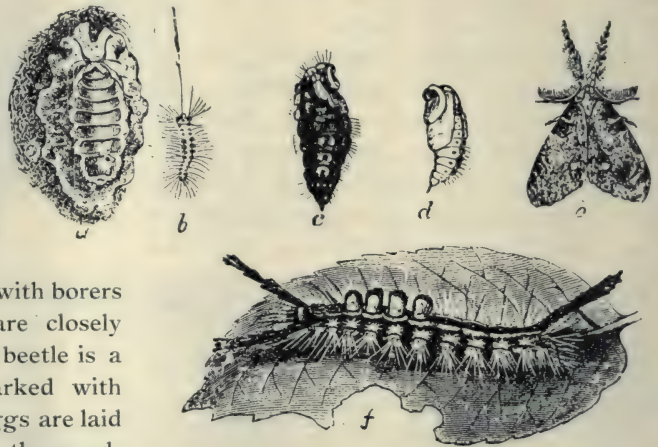


FIG. 1758. TUSOCK MOTH—*a*, wingless female on mass of eggs; *b*, caterpillar; *c*, female pupa; *d*, male pupa; *e*, male moth; *f*, full grown caterpillar.

one ounce of arsenate of soda in one pint of water; empty the contents of each of the pails into a barrel of water (40 gallons.) Stir well and add one quart of glucose. Tar bands, moreover, should be placed around the trunks, and pyrethrum powder may be used to advantage about the tree.

The *Tussock caterpillar* (*Orgyia leucostigma*) is very destructive some years, but with care the trees may be kept quite free from its ravages. (Fig. 1758.) The white, froth-like

masses of eggs, which remain over winter on the trunks and larger branches, and even on buildings and fences near by, may be scraped off and destroyed during the winter. If a few survive this treatment to show themselves as larvæ, spraying with Paris green will kill most of them. The bands of tar brushed on the trunks three or four feet from the ground will prevent the wingless female from ascending the trees to lay her eggs.



FIG. 1759. FALL WEB-WORM—*a*, caterpillar; *b*, pupa; *c*, moth.

The *Fall Web-worm* (*Hyphantria cunea*) is another serious pest of shade trees. (Fig. 1759.) The moth is either pure white, or white spotted with black, and is a very pretty creature. It lays a cluster of 300 or 400 eggs on the leaves. The caterpillars feed in colonies, and each colony spins a web wherever it feeds. When full grown, the caterpillars leave the web and crawl down the trunk to the ground to spin their cocoons, within which they pass the winter as pupæ. Several methods may be adopted to rid the trees of the pest. The collection of the cocoons, and the spraying with Paris green are both effective, but perhaps, the most effective mode of treatment is to burn the webs and the contained caterpillars. A long pole, to the end of which a swab saturated with coal-oil is fastened, makes a good torch for burning the webs.

The *Bag-worm* (*Thyridopteryx ephemerae-formis*), although rare with us on shade trees, is a pest in some cities to the south of us. During the winter silken bags, to which bits

of leaves and sticks are attached, may frequently be found on the twigs of conifers and other trees. These bags contain eggs which hatch in the spring, the little caterpillars emerging from the bags and feeding upon the leaves. They become mature, or full grown in late summer, when the bags, which they have constructed and carried about with them, are fastened securely to branches, or sometimes to fences near by. Within the bags the caterpillars change to pupæ. The male moths soon emerge, but the female moths being wingless and passive, never leave the bags, where they lay large masses of eggs.

The surest remedy for the bag-worm is to pick the bags during the winter and destroy them. If the bags are destroyed no caterpillars can make their appearance unless they come from some outside source.

3. The chief Sap-Suckers are the *Wooly Maple Bark-Louse*, or the *Cottony Maple Scale*, the *Spruce Gall Louse*, and several kinds of armored *Scale-insects*. These all have mouth-parts adapted for sucking the juices of the plants they infest.

The *Cottony Maple Scale* (*Pulvinaria innumerabilis*) is very frequently injurious to maples. (Fig. 1760.) These scales attract attention in the spring by the large cottony masses which envelope them. Within the cottony mass are the eggs, from which in a short time the young lice hatch, and spread over the branches and twigs. They soon settle on suitable spots, and begin feeding by sucking the sap. Full growth is reached about the beginning of September, when winged males appear. The females, how-



FIG. 1760. COTTONY MAPLE SCALE—Showing the insect lying on a cottony mass which contains eggs.

ever, remain under the scale all winter, and in early spring the eggs are deposited in the fluffy, cottony masses. The application of water by hose connected with the city or town waterworks has been found effective, in dislodging the eggs, and in brushing off the lice while moving about.

The *Spruce Gall Louse* (*Chermes abietis*) is undoubtedly a serious pest of the White, and other varieties of Spruce. During the last few years it has done much damage throughout the province. In early spring, about the first week of May, wooly, fluffy masses may be seen on the terminal twigs of the spruce, and if these be examined large numbers of eggs can be found. In another

week the lice hatch, and settle at the bases of the young shoots, which soon show the characteristic curl. (Fig. 1761.) The base of every infested leaf becomes enlarged and gall-like. The larvae are safe from insecticides as they now live within the base of the leaf.

About August 10th, the winged female adults appear, and prepare to lay eggs for a second brood. Lice soon hatch, and spread over the limbs, but those that survive the winter seek shelter at the base of buds. The second brood of adults appear at the beginning of May, when the fluffy, woolly egg masses are seen.

If the trees are sprayed thoroughly with a mixture of soap-solution and tobacco solution

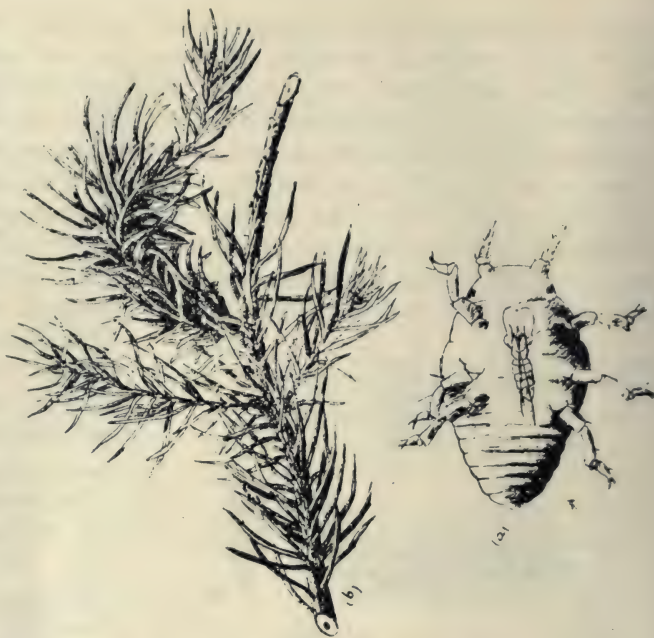


FIG. 1761. SPRUCE GALL LOUSE—*a*, summer form of nymph; *b*, a sprig of White Spruce, with one twig affected by galls produced by the young lice.

soon after the eggs are observed, most of the young lice will be killed. The operation should be repeated in August, when the second brood of lice make their appearance.

Although several armored Scales were observed on shade trees during the past season, and perhaps some damage done to the trees, yet no general complaint has been made against their work.

My next article will deal with the Fungous diseases of shade trees, and the remedies which have been found effective.

W. LOCHHEAD.

O. A. C., Guelph.





FIG. 1762. GROUP OF CONIFERS IN THE ARBORETUM AT THE CENTRAL EXPERIMENTAL FARM, OTTAWA, 1899.

CENTRAL EXPERIMENTAL FARM NOTES—No. 5.



ALTHOUGH it is now late in January there has been comparatively little severe weather so far this winter. A few days before Christmas it became very mild, and nearly all the snow disappeared, but on the 24th there was a fall of four and a half inches, which prevented us from having a green Christmas. The week beginning with December 30th and ending with January 5th was cold. On six successive days the temperature fell below zero, the lowest temperature recorded so far, being that of December 31st, when the thermometer registered 17.9 degrees fahr. below zero. There has been comparatively little snow so far, and up to the middle of the month there were not more than ten inches of snow on the ground.

PINES.

When the ornamental grounds are large, no trees are better adapted for giving character to a landscape and adding to the appearance of the buildings than pines. They

are stately and graceful; typical of strength, yet swaying and bending their branches with every breeze that blows. They are always green, and when the species are judiciously mixed or intermingled with other evergreens, the effect in winter is very fine. They afford considerable protection also, and partly on this account they are more suited for a northern exposure than anywhere else, giving a home an air of greater comfort. Pines are more difficult to transplant than many other trees, and the careless manner in which a maple or even an arbor vitæ may be handled should not be taken as an indication that all trees will survive under this harsh treatment. Pines have few fibres on their roots, and what there are are easily destroyed, for this reason the roots should be kept well protected until planted.

Pines are very varied in their form and the color of their leaves, some being also much more graceful than others. Our na-

ive White Pine (*Pinus Strobus*) is one of the best and most graceful of them all. If this were a tree from some foreign country it would probably be more planted for ornamental purposes than it is at present. The Austrian Pine beside it appears stiff and formal. The leaves, or needles as they are sometimes called, are of a lively green shade, which helps to make it one of the best appearing pines in winter. The white pine succeeds admirably in almost any kind of soil unless it be very wet, but seems to thrive best in good sandy loam. It is a rapid grower, averaging about two feet a year. Young trees ten inches high, planted in 1889, at the Central Experimental Farm, are now twenty feet in height. If good lawn specimens are desired, the trees should be planted when small, and if given plenty of room and cared for they will branch close to the ground and make beautiful trees.

Scotch Pine (*Pinus Sylvestris*). The Scotch Pine is planted more in Canada as an ornamental tree than the white pine. It is not as graceful a tree as the latter, nor its equal in any way, but it is a fine tree. It transplants easier, perhaps, than any other species of pine, and this may be one reason why it is so popular. The leaves are darker than those of the white pine, being of a bluish green color, which makes a fine contrast with those of the other species. It is a very rapid grower, and appears to succeed better on low land than the white pine, it will thrive well, however, in a great variety of soils, but it is best to plant it in well-drained soil. Trees planted in 1888, when eighteen inches high, are now nineteen feet in height.

Austrian Pine (*Pinus Austriaca*). Next to the Scotch Pine, the Austrian is probably planted more than any other pine. It is a rather stiff appearing tree, but very symmetrical, and makes a fine lawn specimen being compact, and, if good trees are planted, branching readily from near the

ground. The leaves are dark green in color and very stiff. It is a slower growing tree than either the White or Scotch pines. Trees planted in 1889 when eighteen inches high are now sixteen feet in height.

Pinus resinosa (Red Pine). The Red Pine is another native which has been used very little as an ornamental tree. At a distance, when young, it might be mistaken for an Austrian Pine, but on closer inspec-



FIG. 1763. RED PINE (*Pinus resinosa*).
C. E. F., 1899.

tion the leaves will be found to be less rigid and softer to the touch. As the tree develops it becomes more graceful than the Austrian Pine, and is preferable in many ways. (See Fig. 1763.)

Pinus ponderosa (Bull Pine). This is a native of British Columbia, and also occurs in the Rocky Mountains in the United States. Very few specimens of this fine native tree have been planted for ornamental purposes in Canada, but where it can be grown successfully it should not be omitted. It is one of the most handsome species. The long glaucous green leaves, sometimes twisted into peculiar forms, and its upright

branches give it a majestic appearance, and make it a very noticeable and attractive object. It is a rapid grower when once established, a specimen planted in the Arboretum in 1890 when fifteen inches high, being



FIG. 1764. BULL PINE (*Pinus ponderosa*),
C. E. F., 1899.

now fourteen feet eight inches in height. It is one of the most difficult pines to transplant, as there are very few fibres on the roots. Great care should be taken to not allow the roots to become dry. The trees should not be more than eighteen inches high when planted, after which they should be well looked after. (See Fig. 1764)

Dwarf Mountain Pine (*Pinus Montana Mughus*). On account of its dwarf, compact and symmetrical habit of growth, and its generally attractive appearance, this is a very desirable pine. It is a native of the mountains of Central Europe, but succeeds admirably in this country. The foliage is very similar to that of the Scotch Pine in some respects. It is a low growing tree, never probably attaining a height of more than ten to fifteen feet. Some specimens are dwarfer than others. This is a very desirable tree.

Swiss Stone Pine (*Pinus Cembra*). This pine is a native of Central Europe and northern Russia. It is pyramidal in form, with foliage somewhat resembling that of the White Pine, but while the latter is a loose growing tree the Stone Pine is very compact, and is one of the slowest growing trees at the Experimental Farm. A specimen planted in the Arboretum in 1889 when nine inches high, is now only two feet four inches in height.


Other pines which have been tested at the Central Experimental Farm and have proven hardy so far, are *Pinus contorta* and variety *Murrayana*, natives of the Rocky Mountains and coast ranges; *P. densiflora* and *P. Thunbergii*, natives of Japan, and *P. Penke*, native of Macedonia.

The pines are all interesting, and most of them are very ornamental. They should be planted in greater variety than they are at present.

W. T. MACOUN, Horticulturist,
Central Experimental Farm, Ottawa.



WESTERN NEW YORK FRUIT GROWERS.

S delegate of the O. F. G. Association, I attended the 45th annual meeting of W. N. Y. Horticultural Society, held in Rochester, on January 24th and 25th. This Society, notwithstanding its venerable age, is still in the full vigor of youth. The attendance at its meetings, and the interest taken in its work, is increasing from year to year.

The officers and members are an intelligent, energetic, large hearted lot of men, who not only know how to grow fruit, but to be happy themselves, and make their visitors feel at home among them. For although we live on the other side of an imaginary line, and under a different form of government it is no bar to the good fellowship and free intercourse among fruit growers, even if it does affect the fruit.

The meeting was called to order by the President, W. C. Barry, of Rochester.

No subject brought before the meeting commanded more attention than "Insect enemies of fruit," and among them San Jose Scale held first place. The alarm caused by this pest is much greater than it was at this time last year. In our country, out of 160 orchards inspected (mostly apple) 102 were found infested. One speaker said that the smallpox had been among them, and that they did not know it! We are only beginning to realize how serious the infestation is. Another speaker said "the scale has got away from us." Nursery stock from other States, with inspector's certificates attached, were found infested. It was stated that all that has been said as to the entire destruction of the scale by spraying was upset by facts. Kerosene, crude oil and soaps have all failed. Fire or fumigation with hydrocyanic acid gas are the only effectual treatment so far discovered. It is said that

some cherry and Kieffer pear trees are almost exempt from its attacks.

The State of Massachusetts has spent about one and a half million dollars fighting the Gypsy moth. Last year it spent two hundred thousand, and only succeeded in preventing its spreading to new territory. There is great danger that it may escape their vigilance and spread throughout America.

A new pest, the cherry fruit fly, has appeared; it attacks the fruit and is very destructive.

Professor Slingerland said that he could not say whether fumigation would kill the eggs of the tent and tentless caterpillar or canker-worm or not.

The disease known as "little peaches" continues to spread in some sections; burning is the only remedy known.

Black rot in grapes was bad in many vineyards last year. Scabbing of apples and pears was not so bad last year as usual.

None of the new fungicide compounds have proved so satisfactory as Bordeaux mixture, it adheres to the tree and fruit better than any other preparation used.

Apple canker continues to spread, destroying whole orchards in some sections. Pear blight has been prevalent this year, best known treatment is to cut and burn affected parts.

Duchess and Kieffer pear are said to be the most profitable. Duchess wrapped up in paper and put up in boxes by Mr. Hooker, of Rochester, brought in the British market the equal of \$14 per bbl. Professor Van Deman says that hundreds of car loads of Kieffer pears are canned and labelled Bartlett.

The Champion quince is good but too late. The Orange quince is said to be the best. The Bosc pear does well grafted on Kieffer trees.

Japan Plums.—Mr. Smith, of Geneva, says that Burbank and Wickson are the best. M. Willard says that Red June and Burbank are his favorite, and that he is more favorably impressed with Wickson than he used to be. Red June matures from the 15th to the 20th of July.

Mr. Willard says that the Windsor is the most valuable sweet cherry ever introduced in York State, being a good bearer, fruit of excellent quality, and a good shipper.

Mr. Powell endorsed what he said, and added that the tree was a strong, hardy, vigorous grower. Montmorency was pronounced the best sour cherry.

Currants.—Since the enactment of the June food law, currants have been improving in price. Now that other materials cannot be legally used in the manufacture of currant jellies and jams the prospect for paying prices for this fruit is good. President Wilder and Fay's Prolific are said to be the best red currants.

Elwanger & Barry show a new seedling pear, of excellent quality, almost equal to the Seckel; it is a winter pear, a seedling of Winter Nelis, and about the size of the St. Lawrence.

Apples.—The prospect for profitable apple growing in this State is good. When orchards are properly cultivated and fed, satisfactory results are secured. Six counties in one section of the State sold five million dollars' worth of apples last year. It is estimated that over one half of the orchards of the State are not properly cultivated or fed, and that many of these are an encumbrance on the land; it is conceded that to achieve the best results, especially in dry seasons, that there must be thorough cultivation. The Baldwin is said to be the best commercial apple grown in the State. Fraudulent packing is damaging the fruit market both at home and abroad. California apples, uniform in size, perfectly packed, arrived in perfect con-

dition, and are bringing three times as much in the best markets as home grown fruit. It was stated that the same condition prevailed in Canada, and I could not contradict it.

Professor Roberts, speaking of the conservation of moisture in the soil, says, "the farmer's cistern leaks on top; to prevent this give more and better tillage; to conserve the moisture in the soil is better than to irrigate." He says that lime, at the rate of 50 bushels to the acre on sandy land, makes it more retentive of moisture.

Professor Van Deman says that there is a greater lack of humus or vegetable matter in the soil than of potash or any other material, and that nitrogen escapes from land ploughed in the fall and left over winter without a cover crop.

The New York State Fruit Growers' Associations are very enthusiastic over the Pan American Exposition, to be held in Buffalo in 1901. They propose to have the finest exhibit of fruit ever shown in America. Committees have been appointed to carry on the work, and a special grant of ten thousand dollars is asked from the government.

The exhibit of apples, pears and grapes was remarkably fine. Among them was a plate of beautiful Princess Louise apples shown by one of our Directors, Mr. A. M. Smith, of St. Catharines.

An act has been passed in the State of New York to define the size of fruit packages. The quart basket shall be 67-1/5 cubic inches, and similarly the exact measurements of other baskets are specified. All pints, quarts, etc., not up to the legal standard, must be marked plainly with the word "short." This is a move in the right direction, for always it is found that in the end "Honesty is the best Policy."

W. M. ORR.

Fruitland.



FIG. 1765. HOME OF MR. T. H. PARKER.

FRUIT IN OXFORD COUNTY.

IT was my privilege last fall, as also the fall before, to visit the progressive town of Woodstock as judge of the fruit displayed at the agricultural exhibition there. That gave me an opportunity to compare the fruit grown in the Oxford district with that grown in the other sections of Ontario which I have from time to time visited in a similar capacity. It has long been held, and believed by many, that the Huron district surpasses all other sections of Ontario in the quantity and quality of apples it produces. I would like to uphold the supremacy of my own section in all things if I could honestly do so; but in the matter of apple production my observation and experience will not permit me. Having had an experience extending over seven years as a judge on fruit at many of the best apple centres in the province, I am compelled by my own close observation to

give the palm to Oxford County for the finest specimens of many of our standard varieties of apples. If those exhibits which came under my observation can be considered a fair criterion of the general crop produced, Oxford County stands at the head of the many fine sections of Ontario for the quality of apples grown. The Golden Russets and Snow apples that took the prize at Woodstock in 1898 would easily have beaten any collection shown between Toronto and Port Huron. In 1899, an off year for apples, four exhibits in the Fall Pippin class at Woodstock surpassed anything of the kind that I have seen anywhere, and the Golden Russet, Snows, Talman Sweets and Baldwins, would all have carried off the prizes in their respective classes at any of the several exhibitions that I attended in other parts of the province. All the other standard varieties shown at

Woodstock last fall were quite up to the average in size and quality, and some of them, besides what I have named above, a little better than the average. The display of Alexanders, for example, was only beaten by the display at Coldwater, north of Orillia, a district supposed to be peculiarly suited for the Alexander.

Nor is Oxford behind for its quality of pears, plums and peaches, though considerably behind the Goderich district in quantity. I was surprised to find at Woodstock a few exhibits of seedling and other peaches of fine appearance and fair quality, really better than I have met with on the shore of Lake Huron, though not grown in so large a quantity.

What pleased me next to the quality and quantity of fruit exhibited at Woodstock was the interest that the people of that progressive town and vicinity manifested in it. That interest in fact might justly be termed an enthusiasm. From our director there, Mr. J. S. Scarff, and the active president of the Agricultural Society, Mr. G. R. Pattullo, to the average citizen and district farmer,—all in fact seemed to take a lively interest in the fruit exhibit, and all seemed to feel special pride in being told that it possessed special merit.

And Woodstock holds the proud distinction of producing the finest under-glass grapes in western Ontario. Mr. T. H. Parker has been a successful exhibitor of indoor grapes at the Western Fair, London, for many years, and also at Brantford, where

he meets a keener competition than at the former place. Mr. Parker grows twelve varieties of indoor grapes, among them being all the finer sorts, and every year he ships a considerable quantity to Montreal at a high price. The wisdom of growing twelve varieties of indoor grapes in this country may well be questioned, as there are not that many sorts really worth the trouble. But Mr. Parker has to have that many owing to a foolish regulation of the Western Fair Association requiring twelve varieties for a collection. No industrial association should adopt rules requiring the production of an article that is not profitable to grow.

As to the town of Woodstock itself I consider it a thing of beauty and a joy as long as you remain in it. Many of its residential streets and avenues for their leafy shade, landscape architecture and rich floral display are quite equal to the finest seen in our largest cities. In 1898 I saw cannas and caladiums in Woodstock large and more luxuriant than in Port Huron or Detroit, and such a pleasing display was not an uncommon or isolated thing. I have visited a number of Woodstocks on this continent, including the one in New England, made famous by Mr. Bowen, of the New York Independent, but among them all, for the evidences of thrift, progressive refinement, and the love of a beautiful home, there is none to compare with the Woodstock of our own beloved Ontario.

T. H. RACE.

Mitchell.

THE WICKSON PLUM was first sent out by Luther Burbank as of pure Japanese parentage; now, however, he has concluded it must be crossed with *Prunus Simoni*, and should be classed with the hybrids.

NEW SOUR CHERRIES.—Mr. F. A. Waugh, horticulturist, Burlington, Vt., gives a report on these cherries in the Twelfth Annual Report of Vermont Experimental Station. He also treats on Hybrid Plums.

PRINCE EDWARD ISLAND ENTHUSIASTIC.

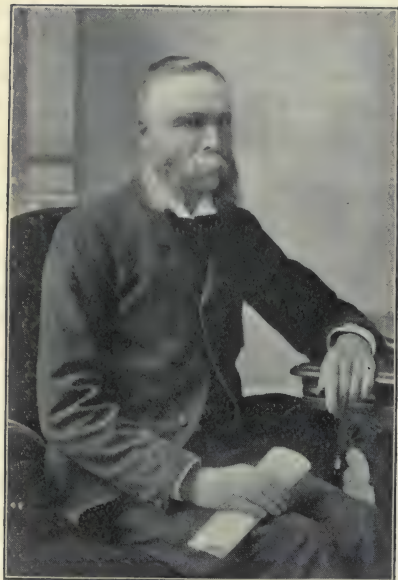


FIG. 1766. H. A. STEWART, PRES. P.E.I. ASSOCN.

EVERYWHERE horticulture at the present time is on the alert. The old associations are as strenuously exerting their influences as in the days of their inception; the new are starting out with a vigor and intelligence which promises everything for their usefulness. Nearly every province has now its well organized Fruit Growers' Association, and the valuable work they are doing to spread the principles of horticulture is before us all. Ontario, mother and mistress of all these daughter societies, has no need of blushing for her progeny.

In January the two Maritime Fruit Growers' Associations held their annual conventions. I have no brief to speak for Nova Scotia, which will be ably reported by some local pen. Our Prince Edward Island F. G. A. is in high spirits. Never since its inauguration was anything like the reception given it by the public at large as last week

when it held its meeting in Charlottetown. Not only did the best farmers and fruit raisers of the province turn out almost to a man, but the representatives of all the other walks in life, recognizing the good work she was doing, were there to do her honor and lend the assistance of their council and membership. The Governor of the Province, the Bishop of the Diocese, the Mayor of the city, the President of the Board of Trade—all vied with each other in giving her countenance—all admitted freely what she has already done for the Island and the still greater things she was to do for it in the coming years. And the Association was alive to the importance of her position, and rose to it magnificently.

The day sessions were for the transaction of business, the hearing of reports, adopting resolutions, appointing officers and committees and listening to and discussing papers. The hall was always crowded during those sessions, and even those who had never heard horticultural discussions before were at the opening and lingered until the last word was said at the closing. On one evening a grand entertainment, interspersed with five minute addresses on some subjects connected with horticulture, was held. The venture was a decided success, and reflected the greatest credit on its enterprising projectors. A large audience assembled and the best talent of the capital gladly contributed to the musical and literary numbers. The Governor himself presided. Everybody—those from the country and those from the towns—thoroughly enjoyed themselves, and the last feature, the giving away of the large fruit display, was by no means the part of the programme the least appreciated.

Prince Edward Island is now receiving nearly three-quarters of a million dollars yearly from dairying, and she only took to the industry a very few years ago. Nor is

she now to the end of her capabilities by any manner of means, she is simply commencing. The people have just only awakened to the conviction that there is money in the fruit industry for the garden province also. The apples we grow are good; there is no doubt of that. We are nearest the British market, that's patent. Our fruit coming in later than even that of Nova Scotia, we will have a great advantage in keeping qualities. All these conditions ought to help to build up a business in fruit for us that will rival Nova Scotia, two little counties of which made \$1,000,000 out of apples this year. Mr. Patrinquin, of Wolfville, N. S., was with us this year at our meeting. He is a wide-awake, practical fellow and his addresses were much appreciated. He says from his experience here and the exhibition of our fruit that there can be no doubt that Prince Edward Island ought to be turned into an apple orchard from end to end. And he thinks we can grow pears and peaches. We can grow pears, no doubt; have grown good ones even now when suitable varieties have not yet been tested; but the matter of peaches we had not thought of up to this declaration. Who knows where we may yet find ourselves in this fruit business?

At our sessions we had four good papers, which evoked much valuable discussion—one on "Pruning," one on "Commercial Orcharding," one on "A Ben Davis Orchard," and one on "Medical Treatment of Plants." All were adjudged worthy of publication. It was felt that no greater necessity than pruning confronted our orchards. As to time the the consensus of opinion favored doing it whenever you have "a spare moment and a sharp saw," although there was a discussion on the "winter for wood, summer for fruit theory." Prune early was another condition all admitted, and if you must cut grown trees take the branches off a foot or so from the trunk and then cut them again up close to it when the weight of a whole big limb will not

interfere with a good job. The state of the market and its demands for success were all laid down in Commercial Orcharding. The Ben Davis apple for export—easily grown as it is here, resisting all the difficulties of transportation and fetching a high figure at home—was the favorite sort spoken of. A faithful account of an apple plantation of the Ben Davis variety was given in the third paper by one of our most intelligent and enterprising farmers; and, while he would not advise others to adhere to all his ways, he was able to give at best the assurance that his orchard was a grand success. The Medical Treatment of Plants pleaded for the systematic and persistent use of the spray pump in the orchard.

Perhaps the most important part of the meetings was the passing of practical opportunity resolutions, all carefully considered and fully discussed. Two of those bore upon the transportation for fruit to the Old Country markets, one suggested by the F. G. A. of Ontario and another called up by local needs. The Ontario resolution, minus the recommendation as to size of apples, passed with unanimity. It has been forwarded to the Minister of Agriculture. As to grades the meeting thought we could not adhere to an absolute size scale for all kinds of apples. If the apples put on the market were branded and the contents of the barrels true to the brand, no harm was done to anybody, most thought. But deception ought to be located and punished. We asked for better facilities for shipping from here too, and for efficient inspection to see that our good name abroad should not be tarnished by rascally packing.

I don't know how you manage the business in Ontario, but it was thought that some restriction should be put on tree agents and some protection against sharpers given the public. The Local Government is asked to give legislation that will prevent the victimizing of buyers by nurserymen from within or without. As before stated, at least half

the stock planted here and imported from Ontario or New Brunswick is the veriest trash. We want to stop this imposture. The Government is also asked to secure to the Province a permanent exhibit of fruit, something that for educative purposes and purposes of identification ought long ago to have been established. And there were other resolutions of great local utility.

The appearance of a sample of Ontario Stark kindly sent me by the indefatigable Secretary of the F. G. A. of that Province, was the cynosure of all eyes. We have Starks of our own, so competent judges here and in Nova Scotia say. They are grown principally by Mr. Pigott, of Savage Harbor, but they are not at all like the Ontario Stark on exhibition. The difference of opinion on this and other apples shows us how difficult it is at times to identify some varieties in dif-

ferent provinces. I have had a little experience in this line myself this fall. Three apples were sent to three Ontario experts, and no two of them agreed as to the kinds and none of them were, in my opinion, correct in their decision. All here will watch the verification process with a consuming interest.

We have elected our President Mr. Stewart, again ; he well deserved the compliment, and about all the other officers. A good man should be held when you get him ; we have added many new members to our list and that of the superb Horticulturist ; we have awakened a new and absorbing interest in our association all around, and now we hope for a year with *omnia fausta et felicia*.

A. E. BURKE.

Alberton,

Prince Edward Island.

A NEW CHERRY PEST.—The Cherry maggot is a new and serious pest in New York. During the past season many bushels of fruit were ruined by this insect. The fly lays its egg on the skin, as the fruit begins to turn red, and from this hatches a maggot which eats its way to the pit, and is carried off when the fruit is sold. The worst thing about this disgusting pest is that it is so hard to detect its presence. Some affected fruits show a sunken place on one side, but others appear perfectly free from injury, and are sold to the consumer as sound fruit. The protest comes mostly from the buyer, after he has put the cherry in his mouth. As yet, no satisfactory remedy or preventive has been found.—*R. N. Y.*

END OF THE CENTURY NOT YET.—Dear Sir, I houp ye winna cut aff a twalmonth fra the fag end o' the cent'ry, as a lot o'

itherwise able men are tryin to dae. Shurely the world began wi' the year 1, and the end o' the first cent'ry was jist 100 years, nae mair an' nae less. Hoo then is that 1900 sidna hae the full compliment o' nineteen hunder years? To cut aff the cent'ry at the end o' 1899 wud mean that the world commenced in the year 0, that is a year afore it began. Noo, ye ken that a hunder times naething is simply naething, and a saxpence is worth a hunder times that, or as muckle mair as ye like. This is nae gairdenin', but I'm only writin' tae warn ye, because the loss o' a haill twalmonth's produce oot o' the gairden, and a twalmonth's waages tae ilka gairdener wud mean a mighty lot. By the bye, that was a bonnie splatter at Edinbro' the ither week wi' the bubblyjock and the haggis. A'boday at the feast will noo be strong enouch to turn ower the dew leaf we're aye hearin' about.—*Tam., in Gardeners' Chronicles.*

NOVA SCOTIA FRUIT GROWERS.

WE HAVE just received an excellent report of the annual meeting of the Nova Scotia Fruit Growers at Wolfville, beginning Jan. 29th. A prominent member of our Association, Mr. A. H. Pettit,* was present and gave an address reviewing the work of our Association and making especial reference to the Grading Inspection Act. The resolution of our own committee on this important question was presented by President Bigelow and received with general approval. The Ontario apple was commended for the commercial orchard by Mr. R. W. Starr, partly on the ground of its standing in Ontario and partly on the partial test it has in Nova Scotia. Mr. Ralph S. Eaton claimed that fruit growing in Nova Scotia was too much occupied with apples, and that plums, pears, cherries and even peaches should be cultivated. He advocated the early establishment of an Agricultural College at Wolfville.

Mr. P. Innes objected to the standard barrel to be introduced by Act of Parliament of Canada on the 1st of July next, the size of which was 27 inches between heads, 17 inches diameter of head and 19 inches diameter at bilge. This barrel, he claimed, would hold 103 quarts of fruit, while the barrel adopted by the United States Apple Shippers' Convention would only hold 100 quarts. He claimed that Canada would be at a disadvantage and that the same size barrel should be adopted in Canada. He also says that the same barrel should be the standard for pears, potatoes and other products, and that the Ontario Association should be asked to co-operate in seeking such amendment.

Dr. O. E. De Witt spoke on Bills of Lading, protesting against the present contracts

which place the shipper at a disadvantage. He said,—

"The clause in the bills of lading now in use, which particularly affect the shipment of our apples is clause 1, which reads as follows: 'That they shall not be liable for loss or damage done to goods by sweating, insufficiency of package in any respect; leakage, breakage of any kind, pilferage, wastage, rottage, rain, spray, rust, fire, heat, frost, decay of any kind, contact with smell or evaporation from any other goods, or loss arising from inaccuracies in obliteration, insufficiency of or absence of marks, numbers, addresses, or description of goods shipped, or injury to wrappers however caused.' The words in this clause to which I think this association should take exception are, 'breakage of any kind, pilferage, rottage, rain, fire, spray, heat, frost, injury to wrappers.' Why should the shipper be responsible for breakage or pilferage, or damage done by rats or rain, or fire, heat or frost? If the apples arrive in the cars at the port of export in good condition and if through the carelessness or rough handling of the steamship companies, the goods are injured or damaged in any way, when loading or in transit or unloading, why should the loss be borne by the owner or consignors? Apples are rolled from the cars in Halifax on to the wharf, put into slings and carried in the slings into the hold of the ship. In London, when unloading, there are three different modes in vogue, viz.: in slings, containing from 20 to 30 barrels; by the grappling hooks; and by sliding the barrels on skids from the rail of the vessel to the wharf. The latter mode is a severe strain on the barrel and may damage a barrel that is at all weak.

"The steamship companies have control of the apples from the time they leave the cars at the wharf in Halifax until they are loaded on the consignees' vans or lighters. If the barrels are taken on board intact, if in a good sound condition, they reach the hold of the vessel, the responsibility of the shipper ought to cease. If damaged in voyage by breakage, pilferage, rottage, rain or heat, or by loading or unloading, the steamship companies should be responsible. I understand that when damage is sustained to general merchandise through the carelessness or negligence or mismanagement of the companies who carry it, they are held and made responsible for the loss.

"Why should not the product of the orchard have the same privilege? Scarcely an account of sales comes to hand but shows the sacrifice of slack, open or damaged barrels. In a few instances bad cooperage may be at fault, but it seems to me that when a barrel is found by the steamship company to be unfit for shipping it should be re-coopered at the expense of the shipper, or laid aside and the shipper notified, but not to be shipped in a damaged condition for the purpose of charging the freight. Innumerable instances have shown that when such barrels have

been sold, they have not realized enough to cover expenses. In view of the partial and unjust clause in the bill of lading referred to, I beg leave to submit the following resolution:

"Whereas the form of bill of lading now in use, and given by the Furness line of steamers to shippers of fruit by such steamships, contains as part of the terms and conditions on which the shipowners undertake the transportation of such property the following provisions:

"1st. That they shall not be liable for loss or damage done to goods by sweating, insufficiency of package in any respect, leakage, breakage of any kind, pilferage, wastage, rattage, rain, spray, rust, fire, heat, frost, decay of any kind, contact with, smell or evaporation from any other goods, or loss arising from inaccuracies in obliteration, insufficiency of or absence of marks, numbers, addresses or description of goods shipped, or injury to wrappers, however caused;

"And whereas great loss has heretofore arisen to shippers, causing their fruit to be sacrificed in the markets; and whereas great loss is likely to arise by reason of breakage, pilferage, rattage, rain, spray, heat and frost, and contact with smell or evaporation from other goods, occurring during the transportation of fruit and by injury done to barrels while loading and unloading at the docks;

"And whereas the said Furness line of steamers is in receipt of a subsidy from the government of Canada;

"Therefore, resolved that this Fruit Growers' Association, in annual session, assembled, petition the government of Canada to regulate the terms and conditions of such bills of lading so as to make the ship owners liable to the shippers of fruit for all damage done to goods by breakage, pilfer-

age, rattage, rain, heat, spray, contact with, smell and evaporation from any other goods occurring during transportation by such steamships, and by injury done to barrels while loading or unloading at the docks;

"And further resolved that a copy of these regulations be forwarded to the Honorable, the Minister of Agriculture for Canada."

LETTER FROM ENGLISH FIRM.

Dr. DeWitt presented a copy of a letter on this matter from Nothard & Lowe, of London, as follows:

"DEAR SIR,—We are continually receiving letters from shippers complaining of the loss they sustain through the low price obtained for slack, open or half-filled barrels. Shippers appear to be under the impression that we have only to make a claim on the shipping agents or owners here in London to have the matter settled, and our claims paid. We have been pushing these claims for some years past, and fought one case some years since on this very question and were beaten. While apples are shipped on this lading, containing the clauses at present existing, we are powerless to enforce claims, although we most sincerely wish we could make the steamer pay these heavy losses.

"We would suggest that the Canadian high commissioner here should be instructed by the government in Ottawa to fight a test case in London on this point, and this would solve the unsatisfactory state of things now existing. We hope you will bring your influence to bear on this matter.

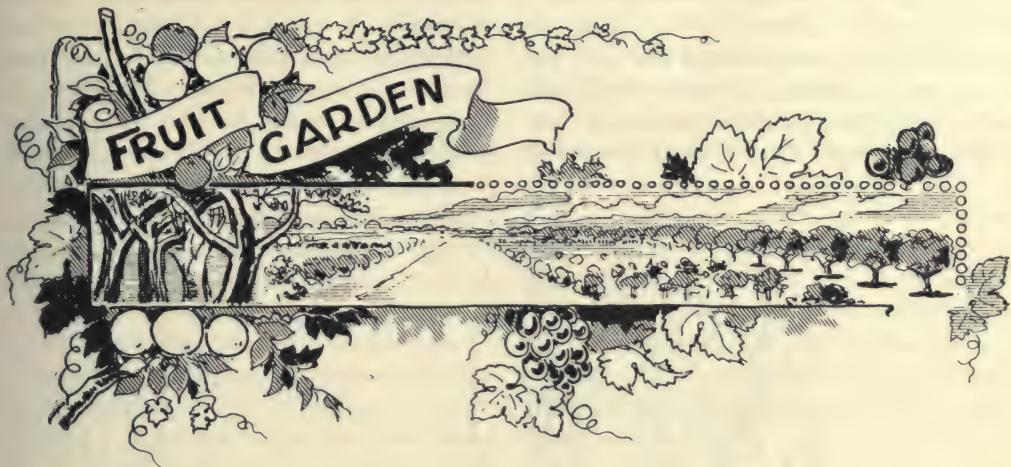
"Yours faithfully,

"NOTHARD & LOWE."

PRUNING PEARS.—Norman, in *The Garden*, says, "Pears are amenable to close pruning. Under this system they continue for many years in good health and bear regularly. * * The pyramid is by far the best for the open ground. I prune my trees to form cordonated branches—that is, they have a main stem in the centre with branches starting from it. Many trees have as many as fifty branches, some of which are twelve feet long, so that I have as it were fifty single cordon trees in one. Mostly the pruning is done in August by shortening the summer side growth to within an inch of the base. It is too common an error for spurs to be over crowded; they require room to allow the leaves to attain their fullest size, when large well-ripened bloom buds will follow.

It is better to err on the side of thinness rather than for the spurs to be crowded."

MELONS IN ITALY.—U. S. Consul Hayden, of Castellamare di Stabia, on December 12, 1899, says: "In this portion of Italy, muskmelons at best are very inferior to the American fruit, lacking the sweet flavor of our melon. Strange to say, however, this same melon when reserved for consumption in winter is very acceptable. A custom exists here of pulling the melon from the vine while green, and hanging it up in the open air until winter, when it is eaten. The melon becomes not only far superior to the ripe fruit of summer, but quite equal to the American product. If this system could be adopted in the United States, it might prove of value."



FRUIT CULTURE.—II.

TILLAGE. The cultivation of the soil, for centuries regarded as a necessary and common place part of the husbandman's labors, has received so much attention during the last twenty or thirty years that this part of agriculture may now be almost considered a science in itself. To grow certain plants and destroy others which interfered with their growth,—this was the sole object of cultivation in the older days. And even yet there are many whose conceptions of tillage go no further than this. Certainly this is a primary object. But the secondary benefits derived are so great as to cause the whole question to be looked at in a different light. As this matter of cultivation is of even more importance to the horticulturist than to the general farmer, it may be well to touch on a few points that affect all kinds of fruit alike. Broadly speaking the benefits of cultivation are four:

1. The destruction of weeds, which rob the plants and trees of necessary plant food and moisture.

2. The improvement of the physical condition of the soil, thereby giving the roots a larger feeding ground.

3. The improvement of the chemical condition of the soil, by rendering the decomposition of organic matter much more rapid, and by making locked-up plant food available to the feeding rootlets.

4. The conservation of moisture.

These are all important points, but cannot be elaborated here. The first benefit spoken of is so obvious that mere mention is enough. Of the third, viz., the chemical improvement, this much may be added. Soil may be really rich in plant food and yet produce inferior crops. "A hundred pounds of potash in a stone-hard lump is worth less to a given plant than an ounce in a state of fine division." The key by which many unsuspected riches in the soil are let out is thorough cultivation. On the second benefit from tillage of fruit trees, viz., the extension of the feeding ground for the roots, a few words may be said. All orchards should be thoroughly cultivated when first planted, and in most cases during their lifetime. The question of leaving orchards in sod when of a bearing age will be touched on under the chapter dealing with the apple. If an orchard is properly planted and carefully cultivated the first year or two the roots will

penetrate deeply enough to escape injury from the plow, and the subsoil itself by thorough tillage and efficient drainage will provide a large feeding ground for the tree. On the other hand if these matters are neglected a surface habit of root-growth is

mately related to the plant-food question, inasmuch as water is the medium through which all plants obtain their food. Nearly all fruits, from apples to strawberries, are composed of about 85 per cent. of water. The production of a crop of fruit, therefore, in addition to the building up of the plants and trees, requires an immense amount of soil moisture. Deep plowing and sub-



FIG 1 BAILEY
Roots of a young apple tree in rich tilled land.

formed, which entails severe injuries when subsequent cultivation is attempted, to say nothing of losses in other directions. The differences are very clearly illustrated in the accompanying figures. Fig. 1 is that of an apple tree six years old cultivated from the start. Fig. 2 shows the result when neglect has been the order of the day.

The fourth benefit derived from the proper tillage of the soil, viz., conservation of moisture, is, in many instances, the most important of all to the grower of fruit. It is inti-



FIG 2 BAILEY
Roots of a young apple tree in sod land.

soiling will enable the soil to receive more moisture, and the finer the particles of the soil the greater the capacity for holding water, while surface tillage, breaking the crust of the ground provides a mulch which checks evaporation of the moisture received in the spring and from subsequent rains. This

statement need hardly be dwelt on. It contains an obvious truth, and so important to the orchardist, that in a dry season it simply means the difference between failure and success.

MANURING.—What has been said above about tillage bears closely on the matter of manures. On improperly tilled and undrained lands, a good deal of fertilizing material already in the ground cannot be used by the roots of the trees, and a considerable portion of any that may be added is practically wasted. Speaking generally, land that is in a sufficiently fertile condition to grow good crops of grain or roots, is in condition, also, to grow fruit trees, or produce fair crops of fruit. The demands of the tree soil are, however, of a different character from those made by the fruit. The elements taken from the soil in the growing of trees, bushes, or vines, are in much the same proportion as in the case of many grain and hay crops. Barnyard manure—to the average farmer the cheapest and most convenient form—conveys these elements, nitrogen, phosphoric acid and potash, to the soil in a fairly satisfactory ratio, besides supplying the necessary humus. The composition of fruit is distinctly different. In some fruits practically no nitrogen exists, and with all fruit potash is the preponderant element. When fruit trees are bearing there is a diminution in wood growth, and a consequent less urgent call for nitrogen; and an increased demand for potash to supply the loss occasioned by the removal of the fruit. Unleached wood ashes will provide potash in an admirable form, and with it also a valuable proportion of phosphoric acid. It is much to be regretted that so large a quantity of Canadian ashes are annually exported when the orchards of Ontario are so largely in need of this fertilizer. People who imagine that good crops of fruit can be produced without high manuring would be vastly surprised if they knew the facts.

Prof. Roberts, of Cornell, has very carefully calculated the comparative demands on the soil of wheat and apples. Computations of this kind necessarily cannot be exact, but they are approximately true, and are a valuable guide to those who wish for light on the subject.

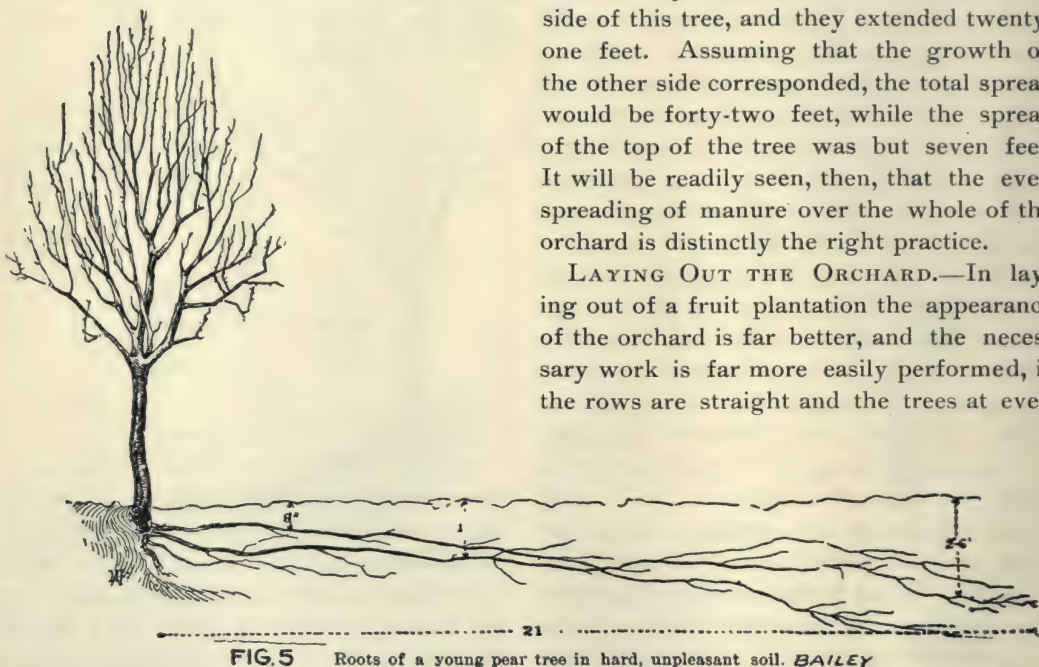
The plant-food taken per acre during twenty years by average crops of apples, counting also the leaves (but not that taken by the wood), and from one acre of wheat by grain and straw during twenty years, assuming an average yield of fifteen bushels and seven pounds of straw to three pounds grain is given below.

	Apples. lbs.	Leaves. lbs.	Value. \$ c.
Nitrogen.....	498.60	456.75	143 30
Phosphoric acid.....	38.25	126.	11 50
Potash.....	728.55	441.	52 65
Total value.....			\$207 45

Grain. lbs.	Straw. lbs.	
424.80	234.78	
160.20	50.40	
109.80	214.20	
.....	.....	\$128 23

Prof. Roberts adds: "The above tables show that the orchard requires, if fruitful, plant food equal in value to eighty-seven dollars more than the wheat. No one would think for a moment of trying to raise wheat for twenty consecutive years, even though the soil was fitted in the best possible manner yearly."

One more point regarding the manner of manuring orchards should be emphasized. The practice of piling the manure, or placing ashes around the tree is common, and is based on a radical misconception of the nature of the root system. Fig. 3 illustrates the point in question. In many trees, as growth advances, the main root is lost in laterals. From these laterals are developed small fibrous roots, and from these again minute root-hairs which convey food and



moisture to the tree. It has been accepted generally as true that the roots of a tree extend as far as the branches. As a matter of fact they extend a vast deal farther, often three times the distance, so that at the ordinary distance of planting there is probably not a square yard of soil in the orchard not occupied by these feeding rootlets when the tree is of a bearing age. Fig. 5 is a reproduction of the actual root system of a young pear tree.

Prof. Bailey laid bare two roots on the one side of this tree, and they extended twenty-one feet. Assuming that the growth on the other side corresponded, the total spread would be forty-two feet, while the spread of the top of the tree was but seven feet. It will be readily seen, then, that the even spreading of manure over the whole of the orchard is distinctly the right practice.

LAYING OUT THE ORCHARD.—In laying out of a fruit plantation the appearance of the orchard is far better, and the necessary work is far more easily performed, if the rows are straight and the trees at even

distances. Of the many methods of laying out, one of the simplest, and one in which the greatest accuracy is obtainable, is the following, illustrated by Fig. 6.

Take a long wire, No. 12 will usually be the right size, (in small orchards a cord will do) and mark off the required distance on it, either by a scratch of a file or by tying on a piece of waxed thread. Let each end of the wire be attached to a strong stake. A B C D represents the field. Measuring the distance from the fence where the first row of trees is to start, stretch the base line F to G placing a small stake at each mark on the wire. Take up the wire and in the same way stake out F H and H I. The wire is then simply stretched from J to K and so on down the field, staking out as before. Quite small stakes, a few inches long do, as no sighting is required. With this plan a planting board as in Fig. 7 is necessary. Take a strip five or six inches wide, and about

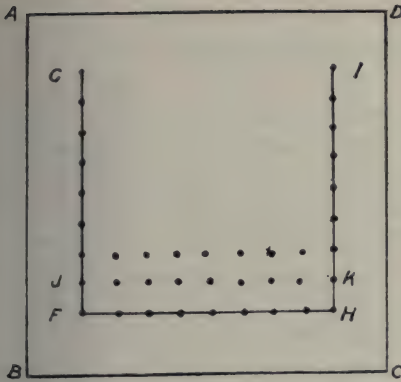


FIG. 6. STAKING OUT

St. Catharines, Ont.

six feet long, cut out a notch in the middle of one side and bore holes through the ends at exactly the same distance from the notch. The notch should be about the size of the tree. When all is ready for planting, the board is placed so that the notch fits around the stake, pegs are then put through the holes, the board lifted up over them, the hole dug, the board is then replaced on the peg and the tree placed so that it fits into the notch. If haste is necessary one man can go ahead with a duplicate board and a supply of small pegs, digging the holes and leaving the pegs for the guidance of the planter.

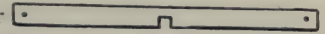


FIG. 7

M. BURRELL.

A COMMERCIAL APPLE ORCHARD.

SIR,—I have just read your "Fruits of Ontario" in the report of the Department of Agriculture and would like your opinion on the following points:

(1) If you were planting a young apple orchard, would you consider Strathroy a safe district for profit?

(2) If you were planting 500 trees (ten acres), what varieties would you select for this district, and in what proportion (out of the 500)?

(3) How long could the land be used for gardening purposes?

(4) What should be the *average* yield per year for ten acres, say twelve years from planting? With six or seven sprayings and fair cultivation? Strathroy.

Yours truly, J. E. W.

(1) Regarding the adaptability of Strathroy to apple culture, a visit to local orchards, especially in fruit season, would be the safest means of judging. After all, the quantity of fruit, the size and color of the samples, together with the general condition of the trees, are the points to determine, and our correspondent is in a better situation to look into these questions than we are.

(2) The selection of varieties for the vicinity of Strathroy would not differ materially from that for any other portion of southwestern Ontario and should include such varieties as Blenheim, Gravenstein, Wealthy, Ontario, Spy and Baldwin. If top worked on Spy or Tolman Sweet the King should be added to this list, and there are other varieties which might be grown with profit.

(3) The land could be used for gardening purposes for perhaps eight or ten years, or until the shade of the trees hindered the growth of the crops planted between the rows. Otherwise hoed crops may be freely grown in an orchard because the cultivation of the soil and the fertilizers needed for such would be a direct benefit to orchard trees.

(4) The yield of an apple orchard for ten years would be practically *nil*, for these are the growing years, and all the fruit gathered in that period would be little more than samples, unless in an exceptional season. Planters usually forget to count upon the years of waiting they must endure before returns can come from fruit trees, or they would more often depend on other crops or resources to enable them to tide over the lengthy interim between planting apple trees and picking apples. Possibly an average of a half barrel per tree might be counted upon during the eleventh or twelfth year after planting, excepting from Spy and King trees, which would be later in coming into bearing. After that, for two or three years one might count on one barrel per tree, under favorable conditions, and so on increasing until at twenty-five years four barrels per annum would not be an unreasonable crop to expect.

SOIL TREATMENT FOR FRUIT GROWING.



At the recent meeting of the British Columbia Fruit Growers' Association, held in Vancouver on Tuesday, the 9th of January, Prof. Shutt, chemist of the Central Experimental Farm, was present and gave an address on fruit growing of which the following is a synopsis:

In appearing for the first time in his official capacity as chemist of the experimental farms before the convention of British Columbia Fruit Growers, Mr. Shutt said there were two thoughts uppermost in his mind; the first was that he might be able to say something of real value to his hearers, something that might be of practical assistance to them in the prosecution of their occupation. The second thought or wish was that during his visit, though it was at an inauspicious season, he might be able to learn much regarding the nature of the various evils to be met with in the province, the fertilizers necessary to increase production and the climatic influences that prevailed. For many years he had endeavored to solve in the laboratories at Ottawa some of the problems that confronted B. C. agriculturists, and he hoped on this visit to gather information which would help him in this work, for he had the interests of British Columbia as much at heart as those of Prince Edward Island or any other province of the Dominion.

Commencing with a brief outline of the nature of soils in general, Mr. Shutt explained their origin and gave the chief characteristics as regards chemical composition and mechanical texture of soil of various classes. The importance of correct proportions of mineral and organic ingredients was then dwelt upon, if the best results as to crop production were to be expected. Mineral matter, including lime, phosphoric acid and potash were necessary for plant growth; organic matter was the store house of nitro-

gen—an essential element of plant food—and also the conserver of soil moisture—perhaps the most important of all the factors which go to make up fertility.

The next matter taken up in detail by the speaker was the nature and sources of plant food, explaining that the carbonic acid always present in the air furnished the larger portion of plant nutriment. This gas was absorbed by the leaves through the agency of sunshine. The mineral portion was extracted and absorbed by the rootlets from the soil.

The question of availability of plant food in the soil was then emphasized. It was only such plant food as was soluble that was of value to crops. Continuous cropping necessarily reduced the amount of such in the soil. Not only must plant food be returned if fertility is to be maintained or increased, but good cultural methods must be followed to render inert or locked up food assimilable, as well as to make the soil absorbent of moisture and a comfortable medium in which the roots can forage.

Acidity or sourness of soils was injurious to luxuriant growth. This was to be overcome by drainage and if necessary by an application of lime. Drainage is necessary for both light and heavy soils, not only to take away superfluous water but to render them mellow and improve their capacity for moisture and heat, for wet soils are cold soils. Many soils are deficient in lime, such are frequently sour. Mr. Shutt expounded a ready means or process whereby every farmer might easily ascertain whether a soil is lacking in this element, which is not only a direct source of plant food, but also useful in liberating potash from the rock matter in the soil. The exclusive use of lime was pointed out as an injurious practice, but together with organic manures was to be highly recommended. Light and frequen-

application were to be advised rather than heavier ones at longer intervals. In answer to an enquiry Mr. Shutt mentioned twenty to forty bushels of lime per acre as an average dressing.

The furnishing of humus or vegetable matter was next taken up. After a brief account of the composition of barn yard manure and cautioning his hearers against allowing the loss of the liquid portion—which is by far the more valuable of the two—the value of clover as an economic means of supplying humus and nitrogen. The legumes—to which clover belongs—are the only crops which have the quality of appropriating free nitrogen from the air, they are therefore nitrogen-enrichers.

Experiments at Ottawa show that the turning under of a crop of red or mammoth clover would furnish a soil with as much humus and nitrogen as a dressing of eight or ten tons of ordinary manure. Clover should also be sown in the autumn as a catch crop in order to hold the soluble nitrates which would be leached out by the winter rains.

In bringing the address to a close Mr. Shutt briefly outlined the composition and function of the more important commercial fertilizers—bone-meal, super-phosphate and

the German potash salt. He suggested as a basic formula the following per acre:

Bone-meal, 100 lbs.

Superphosphate, 100 lbs.

Muriate of potash, 100 lbs.

Before prescribing more particularly it would be necessary to know the character of the soil, its history as to manuring, and the crops it is wished to grow. The value of getting a soil in good condition before planting the orchard was emphasized. It was a poor policy and loss of time to plant trees in impoverished soils. Good growth must be made in early years of the tree's life, so that they may be fruitful when they reach maturity.

After Mr. Shutt had finished several gentlemen took part in the discussion, and a number of very pertinent questions were asked, among others by Mr. Sharpe, from the experimental farm at Agassiz, and Mr. E. Hutcherson, Ladner. Among other questions was that of whether there might be any difference in the chemical constituents of plums grown in different parts of the province, which would affect their keeping qualities.

The meeting accorded a hearty vote of thanks to Mr. Shutt for his very able and instructive address.

NOTES ON SMALL FRUIT CULTURE.

I NOTICE that some Canadian, as well as American catalogues, are advertising the following novelties as desirable and productive fruits to plant. Having had four years experience with them I thought I would let your readers know how they have done with me.

STRAWBERRY-RASPBERRY.—I have found perfectly hardy, it grew finely but set fruit very sparingly. The fruit was large and very handsome, the berries were firm but insipid and worthless to eat. But while it is worthless as a fruit, it is very handsome as

an ornamental plant. It never winter kills. It is easy to grow. Foliage hangs on till late in the fall, then it dies down to the ground, but comes up very early in spring and grows very rapidly to a height of about eighteen inches. The leaves are long and deeply serrated, are a beautiful bright green color; they grow thickly and lay over each other so as to completely hide the ground. It commences to blossom early in June and continues to bloom till October. The blossoms are about an inch and a quarter in diameter and pure white, about one tenth of

the blossoms produce fruit; both the blossoms and the fruit set up prominently on the outside of the bushes, making the bushes very handsome and interesting. It would make a very pretty border or miniature hedge.

MOUNTAIN CHERRY.—This is a small shrub growing only about four or five feet high. It is rather pretty, the leaves are small and abundant. The blossoms are very small and

very numerous. The fruit sets freely and ripens nicely. The fruit is black and small and poor quality. It would do to grow as an ornamental shrub.

JAPAN MAYBERRY.—This is very tender; it kills down to the ground every winter and is worthless here.

S. H. MITCHELL.

St. Marys, Ont.

THE CANADIAN PAPAW.

DEAR SIR,—It is perhaps not generally known to the readers of your journal that there is such a valuable fruit grown in the Niagara district as the Papaw (*Asimina triloba*). This fruit is grown from the Niagara Glen to near Niagara-on-the-Lake, and from Queenston to Thorold along the mountain; the plants grow from a shrub to a small tree, and in some places where I found it growing it was in considerable plantations; the largest about one-quarter acre. The largest specimen measured twenty-three inches at the butt of the trunk in circumference. The tree flowers about the first of June, preceding the leaves; the flowers are at first green, but when fully expanded they are of a dark dull purple. The fruit resembles very much a small banana, and is kidney shaped; there are from one to three in a cluster on the ends of the branches, and they are eatable when touched by frost in the fall. A clump of these trees is a beautiful sight to look upon for a tree lover; they resemble very much the magnolia acuminata in tree and foliage.

I was talking to Mr. Davis Allan, Commissioner to South Africa, this past fall, and he told me that the papaw fruit is very plentiful in South Africa, and one of the most useful fruits they grow. It is used princi-

pally by their cooks when their beefsteak is brought into the kitchen by the butcher; the cook rubs into the steak on both sides a ripe papaw, and when cooked it is as tender as a chicken from the effects of the fruit. Do you not think then that I have struck a gold mine since our beefsteak is so very tough in Canada? But there is still another use to which the people in South Africa put the papaw. Any person troubled with indigestion or dyspepsia takes a ripe papaw and grates it into a dish and eats or drinks the same, and it dispels the very worst attack. Now, Mr. Editor, you may think me foolish to give away such a good receipt, for many a man would make a fortune out of it. I do it to relieve the thousands of men and women troubled with this dreadful disease in Canada.

The ingredients of the papaw fruit, Mr. Allan says, are exactly the same as a fowl's gizzard, and that is why it makes beef tender and cures dyspepsia. So it will now pay me to put a watch on my orchard of papaw fruit, as well as on the chicken roost, lest the white boys pay them a visit for their gizzards.

RODERICK CAMERON.

Niagara Falls South.



TIMELY TOPICS FOR THE AMATEUR.*



FIG. 1767. WM. HUNT, HAMILTON.

MARCH! stormy, fickle March! probably the most trying month of the year for plant life, whether in the garden, greenhouse or window; its bright sunny days, that often lure the unwary plant lover into a feeling of false security, the sudden and extreme drops in temperature, and cold biting winds, seem all to combine to bring disaster to our favorites at a time when success seemed fully assured. Many a fine collection of plants has

been almost ruined, after a winter's close care and attention, by the delusive vagaries of March weather. Moral! watch the thermometer outside closely, don't neglect fires altogether, ventilate carefully, and do not forget to close sashes and ventilators early in the day.

THE GREENHOUSE.—Cinerarias, Calceolarias, Cyclamens, Hyacinths, Narcissi, Primulas, and perhaps a few blooms of early flowering fancy Pelargoniums, will make the greenhouse look gay at this time of year. Zonale Pelargoniums should also begin to make a display of bloom; these latter should have a little manure water to help them out if the pots are full of roots. The bright yellow-flowered Genistas should still brighten up the house with their golden beauty; a cool moist atmosphere suits these plants best, as they continue in flower for a much longer period than if grown in a high temperature. The Genistas are easily propagated by cuttings of the young growth, taken soon after the plants are out of flower; the cuttings should be inserted in sand until rooted, and then potted in rather sandy soil

*NOTE.—It will be necessary for our readers to make some allowance regarding the time and dates mentioned for sowing seeds, etc., and for outdoor work in the garden, as this article is written more particularly for Southern Ontario.

and grown on until they can be planted outside in the border in June; they will make nice plants to pot up in the fall for next season's flowering.

Cuttings of *Stevias*, *Eupatoriums*, *Heliotrope*, *Rex* and winter flowering *Begonias* should be taken now and grown on for next winter's flowering, also cuttings of *Coleus*, *Ageratum*, *Achyranthes*, *Alternantheras* and other bedding plants. *Chrysanthemum* cuttings started now have yet time to make good sized plants, if treated liberally as regards repotting. It is late for *Carnation* cuttings, January and February are the best months for these; if a few are needed, place the cuttings in sand, in a pot or shallow box, stand them on a shelf near the glass, not in too sunny a position, keep the cuttings well watered; you will be more successful with them than if started in a cutting bed. Shade the cutting bed during hot midday sun. Autumn struck *Geraniums* should have their final potting into 4-inch pots. Dutch bulbs in flower, *Calla* and Easter Lilies and all growing plants require plenty of water, especially *Spireas*. Use tepid water, water thoroughly, and only when needed, and early in the day.

Old plants of *Fuchsias* that have been kept dormant during winter should now be brought out into the light, watered and syringed occasionally to start them into growth; as soon as the buds appear cut the tips of the old branches off so as to make the plant shapely, shake the plant out of the pot, removing about half of the old soil, repot into the same size or a size larger pot, give them good, rich, light soil, water when needed and syringe often. A partially shaded position suits them best. *Freesias* should be kept growing after they have done flowering until the foliage shows signs of decay, then withhold water gradually until the foliage is pretty well yellow, when no more water should be given them, the pots can then be stood back on a shelf or put into the potting shed, at a temperature of about 45°,

and kept quite dry until they are repotted in July or August. Repot Palms, *Cordylines* and Ferns if needed, and not already done. Shade the plants slightly at midday to prevent scalding, which often disfigures palms, etc., badly at this time of year.

Insect pests will increase rapidly as the heat increases. *Aphis* and red spider will probably be the most troublesome. Tobacco water and fumigating with tobacco destroy the *Aphis* or green fly most effectually. Light fumigations and frequent are better than heavy fumigation; dampen the tobacco stems before using. Sprinkle the floors liberally with water, syringe the plants well and close the house early, so that the temperature rises quickly; this will help to keep down the red spider.

Seeds of *Alyssum*, *Petunia*, *Verbena*, *Golden Pyrethrum* and *Lobelia* should be sown at once for bedding purposes. A few *Nasturtium* seeds, two or three in a three-inch pot, will come in useful for hanging baskets and vases later on; all other hanging basket plants should be grown rapidly. *Hydrangeas*, *Oleanders*, *Agapanthus* and similar plants that have been dormant during winter should be brought out, cleaned up, and repotted if necessary. Tuberous *Begonias* may be started at any time now. Ventilate cautiously during early spring.

WINDOW PLANTS.—Look out sharply for insect pests, avoid cold draughts, give air from windows in an adjoining room, rather than directly on the plants; lower the top sash, there is less risk than in raising the lower sash. Repot all plants that need it that are required for summer growth or flowering. Water the plants thoroughly when needed, syringe frequently with tepid water, choosing a warm sunny morning if possible for both operations. A few pots of flower seeds may be sown for early planting.

FLOWER GARDEN.—Very little can be done as a rule in the flower garden at this period, unless spring is unusually early. Toward

the end of the month take a peep at the Dutch bulb beds, if the bulbs are showing growth above ground, and the weather is mild, a portion of the winter covering may be taken off, but leave sufficient of the lightest part of the covering to loosely cover the growth ; this can be removed later on, when the tips of the growth have hardened and the weather becomes warmer. Sow Sweet Peas and Mignonette as soon as possible after the ground is in good condition. Uncover all shrubs and trees as well as perennial and biennial plants that have been protected during winter ; exposing them gradually to the sun and air, as recommended before for bulbs. Flower seeds of various kinds can be sown in pots or boxes and started in the hot bed for early flowering, such as Asters, Campanulas, Alyssums, Caliopsis, Cosmos, Dianthus, Gaillardias, Petunias, Marigolds, Zinnias, etc. Some of the new varieties of the *Centaureas* (corn flower) and the useful annual summer flowering *Chrysanthemums*, better known perhaps as *Marguerites*, are very beautiful and easily grown. A few of the old fashioned *Antirrhinums* (Snap Dragon) should be grown, they will give you spikes of bloom from July through the scorching hot days of August, when flowers are often scarce, and continue in flower until severe frost sets in. A few *Nasturtium* seeds, two or three seeds in a three inch pot, will make useful plants for trellises, vases and similar uses. Some seeds of the beautiful and vigorous exotic climber, *Cobea Scandens*, may be sown, one or two seeds in a four inch pot and transplanted into the open ground in June after all danger of frost is gone ; this plant makes a gorgeous climber for covering wire trellises around verandahs during the summer months. Prune hardy roses as soon as the young buds show.

FRUIT GARDEN.—All pruning should be finished this month. Gooseberries, and both red and white currant bushes should be

pruned on the spur system, by cutting back the growth of last year, leaving only two or three of the buds at the base for future fruit buds. Black currant bushes should not be topped, but merely thinned out as required. Remove all useless suckers from all fruit trees, also all branches of fruit bushes that touch the ground, except gooseberries. The lower branches of these latter may be layered if young trees are needed, and this is done by pegging down the lower branches with a forked stick at a point as near the main stem of the bush as possible, and throw a spadeful or two of earth over the branch where pegged down ; in a year's time you will have some nice young bushes for transplanting. Strawberry beds that have been heavily mulched should be partially uncovered.

VEGETABLE GARDEN.—The asparagus bed generally requires the first attention in the spring ; fork it lightly over and rake off a part of the winter's mulching of manure, give it a good coating of salt, a bushel to the rod will not be too much if the bed is well established. This delicious and healthful vegetable should be grown by every one who has a small patch of garden ground, it requires very little care when once planted, and well repays any labor expended on it. Sow a few rows of spinach, parsley, onions and peas as soon as you can work the ground ; sow early and late varieties of peas at the same time, you will then have a succession of pickings by this method. Sow parsnips and plant artichokes as early as possible. A row or two of early carrots and beets may be risked. Mustard and cress seeds may be sown and placed in a hot bed, or even in a window. A good method of sowing mustard and cress is to get some shallow boxes, about two inches deep, fill them three parts full of good soil, level and press the soil firmly, sow the seed thickly so as to nearly cover the soil, press the seed slightly into the soil with a smooth piece of board, but put no soil over the seeds at all,

water plentifully and carefully; by this method you will have an appetizing salad fit for use in a week or ten days that will be free from the customary ingredients of grit and dirt. Lettuce and radish seed may be sown, and any very small onions left may be planted in the hot bed, they will come in for an early relish. A few early seed potatoes may be taken from the cellar or pit and spread out near a window so that they are

safe from frost; they will be nicely sprouted by the time they are required for planting. A week or two can be gained by digging time by this method if properly managed. Sow a few pots or boxes of tomato, early cabbage, cauliflower, and a few pepper seeds, put them in the hot bed and transplant into cold frames when ready; they will make nice plants for early planting in the garden.

HORTUS.

NOTES ON SOME GOOD TREES AND SHRUBS.

THE following notes with accompanying photographs, were kindly furnished us by Mr. R. Cameron, Supt. of Victoria Park, Niagara Falls:—



FIG. 1768. OAK LEAVED MOUNTAIN ASH.

The White Fringe Tree* (*Chionanthus Virginica*), though a native of North America is very scarce; indeed I do not know of another in this vicinity excepting that shown in the frontispiece, which is growing on the beautiful grounds of Mrs. Jas. Wilson, who is one of the directors of our Society. I

always admire the White Fringe when in bloom. The flowers are white, grown in terminal racemes, and are quite fragrant. After blooming in May, this plant of Mrs. Wilson's, which is about ten feet high, produces a crop of purple fruit, like small olives, and indeed the White Fringe is a member of the olive family (*Oleaceæ*). It receives its name, White Fringe, from the flower being cut into narrow segments.

The tree is propagated by grafting it upon the common Ash, or from the seeds, which resemble common plum stones.

Oak Leaved Mountain Ash (*Pyrus Quercifolia*). This tree stands at the side of the residence of Mr. J. Gallinger, Stamford, one of the directors of our Society, and is probably the finest specimen of its kind in Ontario. The Oak-leaved Mountain Ash is an excellent lawn tree and endures for many years. It grows to a height of thirty feet and the spread of its branches is about the same. The branches are very dense, the leaves deeply lobed, bright green above and downy beneath. When the tree is in flower it is a beautiful object, but when covered with fruit in the fall, few trees can be compared with it.

*See frontispiece.



The Canadian Horticulturist

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,000 copies per month.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societ es should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

The VIBURNUM OPULUS offered Horticultural Societies is the well known Snow Ball. The variety is *sterilis*, which is very free blooming, and satisfactory as a lawn shrub.

INDEX FOR 1899.—We regret a mistake of the printer of the index in using a page too small for binding. Anyone wishing an index suitable for binding will please write to the secretary for another one.

CANNED FRUIT SHORT MEASURE.—Chicago dealers in canned goods complain that eastern fruit packers are systematically putting up short measure. One can, for example, supposed to contain one gallon, was brought into court, and found to be $1\frac{1}{2}$ pints short measure. We have no sympathy with such trickery.

OUR WORK TOO LITTLE KNOWN.—Major Sheppard, of Queenston, complains that the public do not know enough of our work and plans. With 5000 copies of our journal in circulation each month, and 7000 copies of the report of our meetings, we did not suppose much more publication needed to show the public what we are doing in the interests of Ontario fruit growers.

THE PARK SYSTEM OF TOLEDO, OHIO, has become the pride of that city. President Jermain, of the Park Board, recently presented his report, in which he states that more than 600,000 people have visited these parks during the past year. One interesting feature was the series of Park Concerts by the Park Board at a cost of over \$1000, which had proved an unqualified success.

QUESTION DRAWER.

The Stark.

1137. SIR,—Where do you rank the *Stark* among our apples?

INQUIRER, Strathroy.

The Stark is a large sized apple, rather coarse in texture, of a dull red color, but on the whole of good appearance, and good shipping and keeping qualities. We should rank it second to Baldwin as a commercial apple; though with our friend Mr. Dempsey, of Trenton, it is a favorite shipping variety.

Plum Rot.

1138. SIR,—Has anything been discovered that will cure plum rot? Does *Curculio* increase rot?

G. F., Waikerville.

The plum rot (*Monilia fructigena*) is propagated by minute spores, which are produced on the outside of rotten specimens of the plum, and are easily distributed by the wind. When these light on a healthy plum, where moisture is present, they quickly start fresh rot. The rotten plums hang upon the tree and soon become dry and mummified. These mummied plums hold some spores until spring, at which time they seem to produce still more of them, and so continue the evil into a new year. It is there-

fore evident that all rotten and mummified plums should be gathered and burned as soon as discovered, as a precaution against plum rot; and secondly, that spraying should be carefully done with Bordeaux just before the blossoms open, then as soon as the fruit is well formed, and again about two weeks later. This is the only treatment we know of to prevent this evil, and this will only do so in part, not completely.

Grafting.

1139. SIR,—If one were grafting Spy or King on Talman Sweet, at what age of the young tree should the grafting be done? and which is the best mode of grafting?

INQUIRER, Strathroy.

The grafting of an apple tree may be done at any age, but the mode would differ with the age. Two year old seedling apple trees may splice grafted at the collar in doors in the winter, and set out in nursery rows in the spring. Four or five year old trees are whip grafted four or five feet from the ground in spring as they stand; while older trees are cleft grafted, usually cutting limbs about two inches, more or less, in diameter, or they may be crown grafted on large branches.

Open Letters.

Dishonest Packing.

SIR,—I have from time to time followed with much interest your articles on dishonest apple packing, and when I saw on page 28 of the last Horticulturist that the "great indignation" of the fruit growers, in session assembled at Whitby, had culminated in a series of resolutions asking for legislation to carry out their proposed regulations, I earnestly hoped that a great step in advance had been taken to remedy this crying evil.

Is the proposed step really in advance? Is it not rather a backward one?

Sec. 3 of these proposed regulations reads: "That all apples or pears packed in closed pack-

ages be subject to inspection by the Government Inspector, and, in case of ten per cent. of the packages of any one grade being found fraudulently packed, the shipper be liable to a fine not exceeding 50 cents a barrel for all packages of that grade."

Briefly stated this section would allow a dishonest shipper to cheat you in nine barrels out of every 100; but if you were smart enough with the aid of the Government Inspector to catch him trying to palm off more than these permitted nine barrels, then he would simply have to discount 50 cents each from the market value of such fraudulent barrels, which he could well afford to do, as each one that he was able to palm off uncaught would net him from \$1 to \$3 more than its value.

To illustrate: A barrel of beautifully-faced Spys which I bought in Montreal last spring at a high price contained nothing but rubbish under the facings. The honorable dealer from whom I bought it paid me back \$1 of his own accord, and my own loss was certainly \$2 more. Now, what would a 50 cent fine against a packer of more than nine such barrels in a 100 amount to? Wouldn't it be a farce?

Everybody knows the penalty for light weight in the "staff of life," and heartily approves that *every loaf* so found wanting shall be confiscated and sent to the hospitals. Now, why should the fraudulent packer of this universally used fruit (which could very properly be called the "staff of good health")—why should he escape with any lesser penalty? If any discrimination between the two be made should it not be in favor of the baker, whose fraud can so easily be detected and without appreciable trouble, and which of course is by no means the case in a fraudulent barrel of apples, as so many of us know at our cost?

I therefore beg leave to "move an amendment" to Sec. 3, and to substitute therefore:

"Sec. 3.—1. That all apples packed in closed packages be subject to inspection by the Government Inspector, and in case of any package of any one grade being found fraudulently packed and not up to the standard of the grade labelled upon such barrel, that the same be confiscated by the Government Inspector.

"2. That full reports of all such confiscations be published in the next succeeding number of the Canadian Horticulturist and such other papers as may be deemed advisable."

It seems to me that any less stringent regulation would be ineffective, and would not commend itself to the public generally, and I hope your *honest* fruit growers will be satisfied with nothing less.

There is still another serious objection to your section 3. Every one knows that a packed barrel of apples cannot be properly inspected and repacked without injury to the keeping qualities of the fruit, for no matter how carefully it be done, many of the apples are sure to get fresh bruises.

Now, under your section 3, no one would be at all safe in buying any barrel *not inspected*; but the proposed amendment would very soon, I think, be effective in reducing the number of barrels necessary to be repacked and inspected fully 75 per cent, perhaps more, to the considerable advantage of the keeping qualities of the fruit, and would of course greatly reduce the work and cost of inspection.

Is not "an ounce of prevention" worth far more than "a pound of cure" in this case?

Would not this suggested amendment be to the *eventual* profit of *all* fruit growers, for would it not force some of them, perhaps unwillingly at first to invest in sprayers and to carefully use them, and also to cut down worthless trees in their orchards, replacing them by better kinds? They might also soon get into the way of thinning their growing fruit, to its great improvement and better financial return.

Does some one "second my amendment" or offer a better one? GEO. O. GOODLINE.

Danville, P.Q., 26th Jan., 1900.

NOTE BY EDITOR.—The criticisms of our correspondent reveal an ambiguity in the wording of clause 3, which has since been corrected. The clause was intended to save the labor of inspecting every package by providing that if ten per cent. were found fraudulent the whole lot might be so classed without further examination. Thus, if the first ten barrels opened out of a lot of 100 be found fraudulent, the inspector could count the whole lot as fraudulent and fine the shipper \$50 on the whole lot.

The following is the amended reading of the clause:

"3. That all apples or pears packed in closed packages be subject to inspection by the Government Inspector, and if on opening one-tenth of the number of packages in any one lot, these be found fraudulently packed, then the nine-tenths remaining shall be so classed, and the shipper be liable to a fine not exceeding 50 cents a barrel for all packages of that grade in the same shipment."

More About Flowers.

SIR,—I like your magazine; it is good in every way, except that more space might be devoted to flower and vegetable culture. I don't grow any fruit, and I suppose there are a dozen who are fond of gardening who do not to one who does. We have not got one good *gardening* magazine in Canada that I know of. I cannot call yours such yet, though I hope it will become one—that department of your magazine is only, one might say, rudimentary yet. I know *American Gardening*, and better still, in its earlier stages, *Gardening*, of Chicago. It was an excellent publication then, now sadly fallen off. I'd gladly double my subscription to yours to get the information and helps *Gardening* once furnished its readers with. I say this to encourage you to work in the direction of gardening as distinct from fruit growing more. There is a large and growing field for such a magazine in this country.

Yours truly, A. B. O.

Ingersoll.

We have frequent requests from flower lovers asking that more attention be given to floriculture, and quite as often we have letters from fruit growers asking that more attention be given to their particular department. Primarily, of course, our journal is intended

for fruit growers, but since so many horticultural societies have affiliated and our membership now includes so many interested in floriculture, we are compelled to give

more attention to this department. We shall always appreciate suggestions from our readers, and beg their aid in making this journal increasingly useful.

Our Affiliated Societies.

ORILLIA.—At a meeting of the Directors on the 13th of November last, it was resolved that a grant of \$30, or so much less as might be required to pay the prizes awarded for fine arts, be made to the East Simcoe Agricultural Society, provided it could legally be done, and the Secretary was instructed to communicate with the Department of Agriculture in the matter. The following is the reply of the Department: "In reply to your letter, I beg to state that it seems to us the present proposal of making a grant to the District Society sufficient to pay the fine art prizes, in no way differs from your previous practice of paying these prizes direct. The act certainly does not contemplate allowing Horticultural Societies to pay for prizes outside of Horticulture, and we are not in a position at present to know whether such action on the part of your Society would meet with protest from any source, or whether it would meet with the approval of all parties concerned. The District Society, of course, would be pleased. Then, I take it for granted that the members of

your Horticultural Society are unanimously in favor of it. There are, however, four other societies interested, and it would be quite within the province of any one of them to object to our paying money to your Society to be used for the purposes other than the act states. We are not going to say under the circumstances that you must not make the grant this year. If you make it you must assume full responsibility, and it must not be taken as a precedent for next year." The foregoing letter was read at the annual meeting, and the Secretary stated that on receipt of the letter he had consulted with the President, and it was deemed advisable to reserve the matter for the action of that meeting. Some discussion ensued, and it was moved by Mr. Alport and seconded by Mr. Street, and resolved, that, in view of the letter from the Deputy Minister of Agriculture just read, this meeting is of opinion that none of the funds of the Society should be expended for any object not fully justified by the act of the Legislature.

Our Book Table.

EXPERIMENTAL FARMS.—Report for 1898. Dr. Wm. Saunders, Ottawa.

A fine report, showing what valuable works these farms are doing for Canada.

THE GARDEN.—A weekly illustrated journal for garden, orchard and woodland, Volume 57. Office, 20 Tavistock street, London, W. C., England.

For a long time this journal has been among the most valued of our exchanges, being conducted with exceptional ability and containing articles of exceptional value to gardeners and fruit growers. Of course the matter is adapted to English conditions, but aside from this it is in advance of American journals in teaching methods of intensive horticulture. The journal has recently changed hands and is the property of the managing owners of "Country Life." The editors are Miss Jekyl and Mr. E. T. Cook, whose ability is well shown by the excellent issues so far sent us for 1900.

FRUIT AND ORNAMENTAL TREES, Roses and Shrubs, grown and for sale at Central Nurseries by A. G. Hull & Son, Central Nurseries, St. Catharines, Ont.

DIRECTIONS FOR SURVEYING AND ARRANGING HOME AND SCHOOL GROUNDS, a well illustrated pamphlet, written and published by W. H. Manning, Tremont Temple, Boston, Mass.,—in press. Price, 25 cents. 1900.

A HAND BOOK FOR PLANNING AND PLANTING HOME GROUNDS.—Written by W. H. Manning, Boston; published by Stout Manual Training School, Menomonie, Wis., 1899. Price, 35 cents.

These are two books of great value in their respective spheres, the one giving directions for surveying and arranging home and school grounds, the other for planning and planting the same. Being prepared by one of the leading landscape architects in America is alone a sufficient guarantee of the practical nature and excellence of these books, which has been so highly appreciated by Mr. Stout, the founder of the Training School at Menomonie, Wis., that he has published the hand-book for use at the school.

We shall be pleased if we can be the means of introducing these books into Ontario for the encouragement of landscape gardening, and thus helping to beautify the parks and gardens of our country.

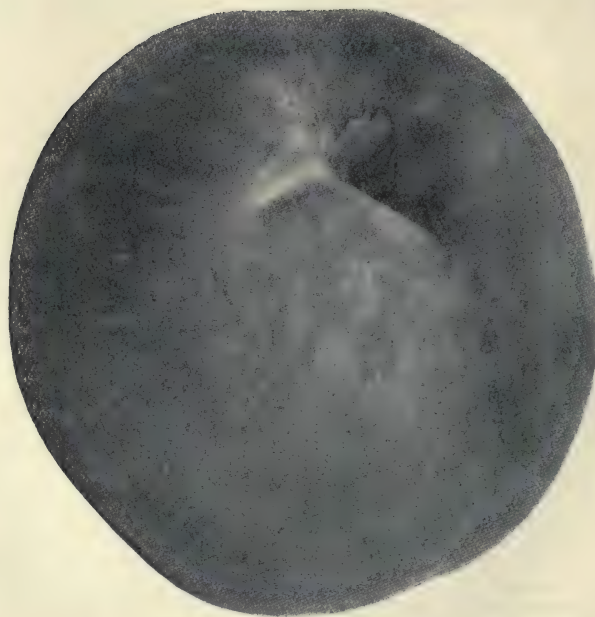


FIG. 1769. THE ELBERTA PEACH.

THE CANADIAN HORTICULTURIST

Vol 23

1900

No 4

** APRIL **

THE ELBERTA PEACH.

ABOUT forty years ago, when our Association was first organized, fruit growing could scarcely be called a distinct vocation; and the small crops harvested in the garden or orchard were taken to the nearest market along with the butter and cheese. In the oldest Report of our Association, published in 1863, reports were collected from the various counties, showing what fruits could be grown; and, in those from the County of Wentworth, we read, "The peach crop is uncertain. Severe cold destroys the fruit buds, and it is sometimes sufficient to destroy the trees. It is recommended to train them on walls, or trellises, and protect them;" and even under Lincoln County we read "the peach crop is uncertain."

A great change has come over this whole district, and peach orchards of large acreage have been planted, until the crop now moves in car loads; all our large markets are glutted with this delicious fruit, and prices have dropped from \$3.00 to 50c. a bushel. Naturally this condition of things led us to try exporting the peach, and the magnificent

Crawford was first packed for export. It was a magnificent failure, for it was too soft for carriage to a distant market. Just at this time the Elberta was introduced from Georgia, a cross between the Chinese Cling and Crawford's Early. It was planted with caution, because originating so far south, but it surprised everybody with the hardiness of the tree and the good shipping quality of the fruit. Then we proposed that it be tried for export, and a few boxes were timidly forwarded in cold storage. The result was surprising; it carried in perfect condition, and now it is looked upon by the shippers as the peach for export. The fact is that for this purpose the many-variety system, which is well enough for home markets, is all wrong; and instead we want just about one first-class, high grade variety of peach, pear, apple and grape, and ship that variety in such quantity as to make an impression on the English market, and make it known as the characteristic sample of that fruit from Canada. It may interest some readers to have a brief technical description of this comparatively new and valuable variety.

ELBERTA—The best peach of its season for all markets, and the only variety especially suited for export by reason of its shipping qualities.

ORIGIN—Georgia; a cross between Chinese Cling and Crawford's Early.

TREE—Vigorous, hardy, and moderately productive, carrying as many samples as a tree should, and if a heavier cropper, would need careful thinning. The leaves are quite subject to curl leaf; but this may be controlled by spraying.

FRUIT—Medium large, round oval, one side somewhat larger than the other, suture distinct; skin, lemon yellow, with fine red cheek; stone free, deeply corrugated, pointed. **FLESH**—Yellow, tender, juicy, melting; flavor rich, agreeable and very good.

SEASON—September 20th to 25th, about a week later than Crawford's Early.

QUALITY—Dessert very good; cooking best.

VALUE—Home market very good; foreign market, best.

PROGRESS, THE MOTTO IN FRUIT GROWING.

WE have often advocated improved methods in fruit growing, and no doubt many of our readers have themselves felt the importance of waking up to the new conditions of this era. New markets require new packages, special varieties, and special storage. Twenty-five years ago, when we planted our orchards, it was with the view of pleasing our near markets, and we filled our order with all the varieties in the nurseryman's catalogue; but now, for distant market, we want just one or two special varieties—the best of their kind, so that we may gain an honorable name, and consequently high prices. To do this we shall be compelled to top graft our apple and pear orchards, and replant our peach orchards, with a view to the special demands now claiming our attention. Perhaps no one man at the present day has done more to give us high grade varieties of fruits than Mr. Luther Burbank, of California, and we quote what he says in the American Agriculturist on the subject before us. He says:

The fruit grower of to-day must have the ability to adapt himself to the new methods, new fruits and new markets. By use of cold storage and rapid transit the finest fruit from every land can

be found in any large market, both in and out of season, for while the fruits of one hemisphere are first waking from their winter's sleep, on the other the summer sun has done its work and the ripened fruits are on their way to distant markets. With the world as a market, competition is keen, and only the best fruits in the best condition will pay. Furthermore, it generally costs much less per ton to produce large, first-class fruit than the poorest, meanest specimens that are ever offered. Small fruit exhausts the tree more rapidly than large fruit. It will thus readily be seen that improved varieties which produce uniformly large, fine fruit are the more economical manufacturers of fruit, and also that the product is more salable.

The tree which needs a good deal of pruning to keep it in proper form and vigorous health should be replaced by one that has a better habit of growth, for every ton of wood taken unnecessarily from an orchard represents at least as much weight of fruit. Many varieties have two or three superior qualities, but woefully lack in many others. The fruit grower of to-day is simply the manufacturer, and should have the latest and best improvements. Of course there never can be one variety which will be best for all purposes, but it is perfectly possible to produce varieties which for their own special use can be relied upon to produce full crops of the best fruit without fail. All this can be done by careful selection and breeding.

BETTER PRICES.—Fruit growers have had their seasons of discouragement, too many of them, but now the indications are brighter. Cannerymen are already making contracts for fruit at higher prices, showing that their goods are on the advance.

THE CARE OF SHADE TREES—III.

FUNGOUS DISEASES.

IT is a matter of common observation that fungi play a very important part in the life of many trees, and frequently the most serious disturbances of their vital processes are brought about by the action of these lowly organized plants. It must not be supposed, however, that all the fungi, living in vital connection with trees, are harmful, for recent studies show that many of our common



FIG. 1770. *Agaricus melleus* (Tree Root-Rot).
A group of plants clustered at the base of a tree, and showing the cap, stalk and gills. The spores are set free from the edges of the gills. (After Massee).

trees, such as pine, spruce, tamarack, beech, oak, hazel, hornbeam and birch, have their fine rootlets covered with a sheath of fungous threads by means of which the feeding processes are accomplished. These fungous threads, or mycelium, take the place of the root-hairs of ordinary plants, and absorb the food materials from the soil. There are other examples of the fungi and roots living in intimate vital connection, and for their

mutual welfare. Most of the members of the heath family, most of the perennial plants living in meadows on peaty and humous soils, and the members of the legume family, have fungi living symbiotically with the roots.

Inasmuch as fungi are incapable of manufacturing plant-food out of inorganic food-materials, and must feed upon the already prepared food in the decaying vegetable matter of the soil, it becomes highly necessary that the supply of humus be maintained in the form of litter and forest mould in our parks and woods.

The fungi affecting shade trees may, very conveniently, be divided into three classes, according to the parts of the trees they affect: 1. Fungi affecting the roots and base of trunk; 2. Fungi affecting the stems; and 3. Fungi affecting the leaves.

1. *Fungi affecting the Roots and Base of Trunk.*—The entrance of fungi into the roots of trees is determined to a large extent by the conditions of situation and climate. Where the tree has been weakened by any of the physiological causes discussed in the February number of this magazine, the roots are unable to prevent the development of those fungi which find an entrance into the tissues.

(a) *Tree Root-Rot. (Agaricus melleus).*—This destructive toad-stool is a very common fungus, not only on all kinds of fruit trees, but also on the forest trees, shade trees and conifers. The cap of the toad-stool, when full grown, is two inches across, and has a honey color. The stalk is often four inches high, and the gills and spores are white. (Fig. 1770.)

The spores are distributed by the wind chiefly. On germination delicate, cob-web-like threads are produced, which soon form a blackish covering on the roots. The roots

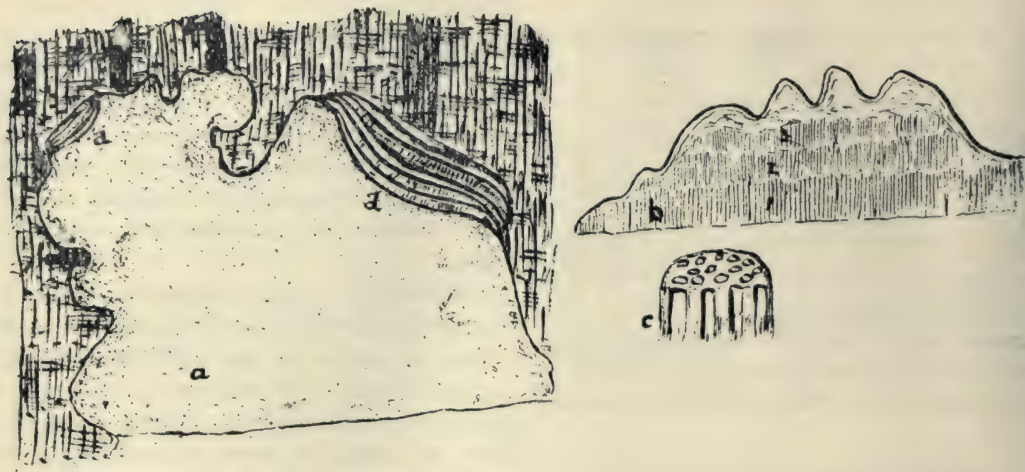


FIG. 1771. *Trametes radiciperda*, (Root-Rot of Conifers), *a*, part of a fungus showing the crust following the irregularities of the bark, and the two projecting shelves *d*, both composed of several overlapping shelves; *b*, a section of the crust showing the three layers or thickness of tubes 1, 2, 3; *c*, a portion of the spore-tube layer showing the tubes and their openings or pores slightly magnified. (After Massee).

are penetrated by the threads, which make their way between the bark and the woody part. Gradually the whole mass of tissue of the cortex of the root, as high as the crown, is literally choked with the fine threads, and the vital activities of the plant are seriously interfered with. During late stages of the disease I have frequently seen the surface of the almost dead roots covered with a matted, white felt of threads.

The fungus is not content to remain on a single tree, but will send out dark, radiating threads through the soil to the roots of other trees, which are attacked in a manner similar to the first.

Remedies.—From what has been already said it is evident that there are two sources of infection of trees: (a) by spores, and (b) by the fine black radiating strands underground. These two sources suggest two methods of treatment: (a) by preventing the formation of the spores on the gills of the cap, and (b) by isolating infested trees, for it is impossible to kill the fungus after it has once made an entrance into the roots. All

the fruiting forms, or caps, should be destroyed by burning. Infested trees, which are considered too valuable and healthy to destroy, should be isolated by a ditch about ten inches deep, dug around the tree. This will prevent the underground strands from reaching other trees.

The disturbances produced by the presence of fungal threads are far-reaching. The transpiration of water, when the leaves are affected, is seriously interfered with; the cells of the parts affected are gradually destroyed through the consumption of the cell-contents; and chemical changes are initiated which results frequently in the malformation, hypertrophy of tissues; and finally death ensues.

(b) *Root-Rot of Conifers.* *Trametes radiciperda*. (Fig. 1771.) This is a very common fungus on roots of conifers. The mycelium may pass from a diseased root to another close by which is not diseased, and in this way a single tree may infect a large number. On infection, the cells of the wood become brown, and white patches make their ap-

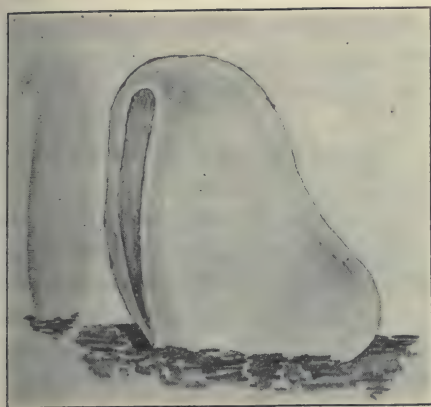


Fig. 1772. *Polyporus betulinus* (Birch shelf fungus), showing the horse-shoe shaped shelf. (After Massee.)

pearance. Flattish, fruiting structures form on the surface of the roots, while the shelf which appears on the roots and stumps resembles a white crust or cake, nearly an inch across. The upper surface of the little shelf is brown, and the lower surface is white. In all cases, save the Scotch pine, the disease soon ascends into the stem. Moreover, it is thought that mice and other burrowing animals assist in the dissemination of the spores.

Remedy.—As with *Agaricus melleus*, the shelves should be removed to prevent the spread of spores, and a ditch dug about the diseased tree to prevent the infection of the roots of neighboring trees.

2. Fungi affecting the Stems of Trees.

(a) Heart-wood Rots. (*Polyporus* sp.)

One of the most common objects seen in parks and woods is the large shelf-like fungus projecting from the trunks of both living and dead trees. The various species have quite characteristic shelves—e. g., the shelf on the birch is shaped like horse's hoof, that on the oak and willow is crispy and wavy margined, while other forms may be hemispherical. (Figs. 1772 and 1773.)

The heartwood is usually the first region injured, afterwards the sapwood. Where-

ever a crack or wound permits the thread of the internal mycelium to get to the surface, one or more of the shelves will be found. It is by means of wounds that the mycelium, produced by germinating spores, finds an entrance into the inside of the tree. In a few years the heart of a tree may become entirely rotten, but it is "usually several years from the time a tree is first attacked until its death." The majority of these shelf-fungi spread by means of spores liberated from minute pores on the under side of the shelf; while a few, like the root-rot fungus, spread chiefly by underground mycelia, "from tree to tree along decaying roots."

Remedies.—In the case of trunk-infesting forms, the fungous shelf ought to be destroyed whenever it is seen, thereby preventing the liberation of the minute spores. All broken branches, moreover, should be carefully trimmed and treated with some protective fungicide, such as tar. With root-infesting forms, where the mycelium crawls from tree to tree by means underground, decaying roots, it becomes necessary to remove the cause of the spread. The earth at the base of the tree may be freed from all decaying roots, and all injuries carefully treated with tar.

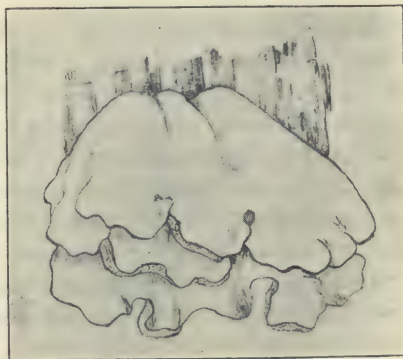


Fig. 1773. *Polyporus sulphureus* (Heart-wood Rot), showing the irregular and wavy margin. (After Massee.)



Fig. 1774. *Nectria ditissima* (Apple-tree Canker); (1) a branch recently attacked, the disease entered at the axil of the small branch, a perithecia; (2) a branch diseased for some time, showing the rugged, raised margin about the wound; (6) conidia spores; (7) germinating conidium-spore; (8) ascus containing spores—the asci are contained in the perithecia. (After Massee.)

(b) *Cankers* (*Nectria* and others).—The cankers are not nearly such conspicuous objects as the shelf-fungi. Some of the cankers have dark colored fruiting forms, while others have bright red forms. Nearly every kind of forest and shade tree is liable to infestation by these fungi, and the infested trees are sources of rapid spread of the disease to the other trees of the park.

The most common cankers are the *Apple Tree Canker*, *Spruce Canker*, *Larch Canker* and the *Coral Spot Canker*. (1) *The Apple Tree Canker* (*Nectria ditissima*) is very frequently found on the common forest and shade trees. Gaining an entrance through a wound, the mycelium attacks the bark, which it destroys in a characteristic manner. As the bark cracks concentrically, the area of diseased portion gradually enlarges, so that sometimes the trunk is completely girdled. Usually the diseased area is surrounded by a thick, irregular margin, which is also quite charac-

teristic. In late fall whitish cushions of mycelium come to the surface, and produce minute spores, while in spring bright red cavities appear, containing the asci and spores. Fig. 1774).

(2.) *The Spruce Canker*, (*Nectria cucurbitula*), is chiefly found on the spruce. The fungus gains an entrance through a wound, and attacks the tissues of the cortex and to some extent the wood. When the bark becomes moist the mycelium may come to the surface and produce minute spores, and later in the season red perithecia are formed, and spores are liberated from asci.

(3.) *The Coral Spot Canker*, (*Nectria Cinnabarina*), is often seen on maples, horse-chestnuts, and red currants. This fungus is most commonly found on dead twigs and branches, where the bright coral-like warts are frequently very conspicuous. Like the spruce-canker the spores germinate on being brought to a wound, and the mycelium makes its way into the tissues beneath. The coral warts are not observed until the death of the twig.

(4.) *The Larch Canker*, (*Peziza willkommii*). (Fig. 1775). In low-lying regions the larch is frequently attacked by this fungus, which has found an entrance through some wound. The presence of resin on the diseased twigs, oozing from cracks in the bark, and yellow, wilted leaves reveal the progress of the disease. The spores are formed in asci sunken in the infested spots. Year after year the canker spot enlarges, and soon girdles the tree. The fungus may be readily recognized by the saucer-shaped fruiting area; the internal part of the saucer being orange-red, and the outside white and downy.

Remedies.—Since all these cankers are wound parasites, it is necessary to keep a strict watch on all our shade trees for wounds. Whenever they are found they should be dressed with a solution of green

vitriol, and afterwards with a coating of tar. It is also very essential that diseased twigs be removed as soon as seen, and that the fungus be not allowed to produce spores.

(c) *The Pine Fungus*, (*Trametes pini*.) (Fig. 1776). — When fully developed this fungus is readily recognized as one of the shelf-fungi (Polyporids). — The shelf is irregularly triangular in form, two or more inches across, of a reddish brown color, and with the cap concentrically grooved. As ordinarily observed the fungus is characterized by white blotches or expansions on the bark, and by the reddish-brown color of the diseased wood.

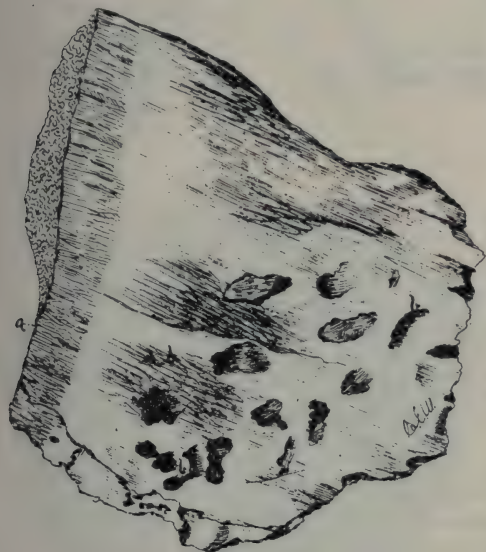


Fig. 1776. *Trametes pini* (Pine Fungus). A section of diseased wood, (a) the pores in which the spores are produced, (b) the affected tissue which is saturated with resin and partially decomposed. (Original).

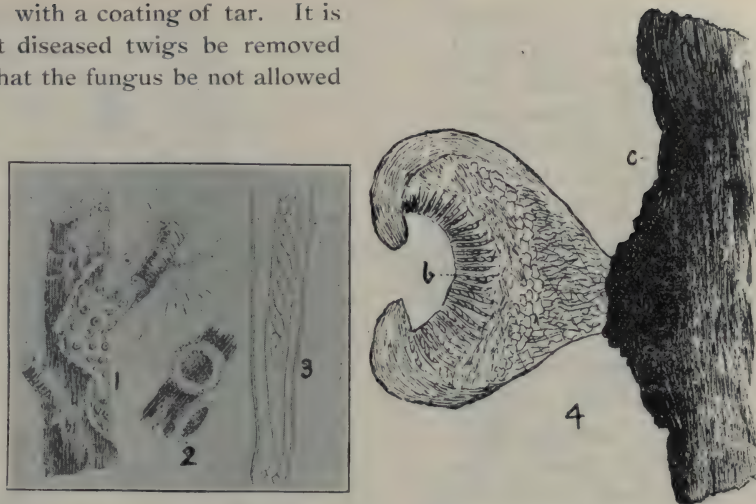


Fig. 1775. *Periziza willkommii* (Larch Canker), (1) showing a portion of a branch diseased, (2) two apothecia slightly magnified, (3) an ascus containing eight spores, (4) a section of an apothecium greatly magnified, showing the asci and spores in them (b). (1, 2, 3 after Massee, 4 original.)

Inasmuch as the mycelium gains access to the tree through wounds, and the external portion does not make its appearance until the mycelial threads are very numerous within the tissues of the tree, it is the duty of the owner to treat all wounds immediately on discovery, and to remove all trees which show any outward signs of the disease.

(d) *Pine Cone Fungus* (*Peridermium pini*) (Fig. 1777). This fungus is quite a common form on pines in Ontario. A characteristic feature of the diseased condition of the tree affected is the "resin top," caused by the death of the upper branches through the stoppage of the upward current of sap in the wood. The mycelium is perennial, i. e., growing on from year to year. Cells which are attacked lose their normal content, and secrete turpentine to such an extent that resin frequently overflows from cracks in the bark. Much irregularity in the growth of the trunk of the tree results from the destruction of the cambium. The stage of the fungus which is found on pines is the "aecidial" or cluster-cup stage, appearing in early summer

as sausage-shaped swellings filled with spores. (Fig. 1777).

Remedy.—The only available remedy is the destruction of the tree, so that the disease may not spread to other trees.

(e) *Cedar Apple and Apple Rust* (*Gymnosporangium* and *Roestelia*). (Fig. 1778). It is well known that certain stages in the life of the rust of wheat (*Puccinea graminis*) are passed on the wheat and the other stage on the barberry. The parasite which causes "apple rust" passes part of its life on apple leaves as *Roestelia*, and the other stage on the cedar or juniper as *Gymnosporangium*. Nine species are known in this genus: two on white cedar only, three on red cedar only, two on both white and red cedars, one on the common juniper, and one on the western juniper (*J. occidentalis*). The mycelium is perennial in most species, and the abnormal growths depend to a certain extent on the part affected and the rate of growth of the fungal threads. Growths on the affected leaves are called "cedar apples." (Fig. 1778).

Distorted branches are very common forms of the disease, and are known as "witches' broom." The resting spores produced on the cedars and junipers, under favorable conditions, germinate and soon liberate spores of a slightly different nature. These, falling on the leaves of the apple, produce the "apple rust."

(f) *Lichens.*—Lichens are extremely common on all kinds of trees. They form incrustations on the bark, and may be either



Fig. 1777. *Peridermium pini* (Pine Cone Fungus), (a) leaves of pine affected with this disease. The cluster cups occur as orange yellow blisters and contain the spores. Spermatogonia (b) appear as black spots. (B) shows a branch which has been killed and which bears cluster cups. (After Massee).

leathery or semi-gelatinous in texture. It is conceded by most authorities that the lichens do not get their nourishment from the trees—they incrust, but use their position on the bark as a means of getting a better livelihood from the air. The surface of the lichen is specially adapted for absorbing dew, rain or

mists very quickly, and their food materials are obtained from the air and the moisture which reaches the plant. Mineral salts are brought to the lichen by the dust in the air, and probably also by the dead bark or the decaying leaves on the bark. Lichens are really dual plants, composed of fungi and algae—the fungi holding the algae as slaves in the mesh-work of the hyphae. The algae, containing chlorophyll, can make organic food out of the inorganic materials at their command, while the fungus can feed upon the organic food thus prepared. (Fig. 1779). It is very evident that the lichens which incrust the



Fig. 1778. A, *Roestelia pirata* on apple leaf; (1) aecidia or cluster cups containing aecidiospores. B, *Gymnosporangium macropus*, (1) the cedar apple showing the yellow horns containing the teleutospores or winter spores.

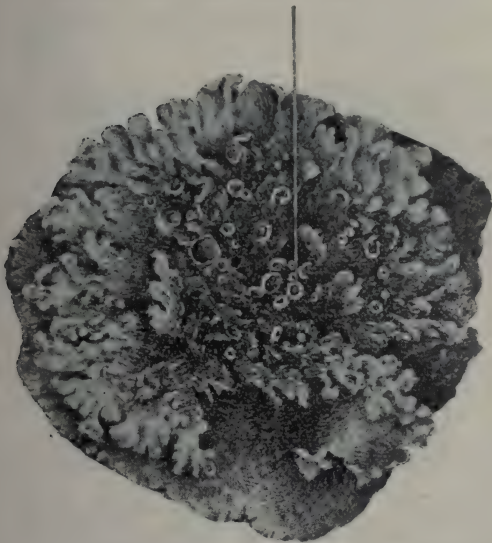


Fig. 1779. Lichens.

bark of a tree do much harm in that the breathing pores of bark are closed and oxygen is unable to get access to the interior cells. This loss of oxygen is of vital importance to the healthy working of the tree, and all shade and fruit trees should be kept well cleaned. Careful scraping will do much good, but perhaps the best remedy is the application of some strong caustic, such as whale oil soap (2 lbs. to a gallon of water in winter) or fungicide, as Bordeaux mixture.

3. *Fungi affecting the Leaves.*

(a) *Maple Leaf Blotch* (*Rhytisma acerinum*). (Fig. 1780.) Frequently the upper surfaces of the leaves of maples contain large black patches of a fungous nature. These patches make their appearance in June, and are then yellowish in color, but a little later they turn black and thick, forming a sort of scab, due to the fact that the mycelium becomes hard and dense. During



Fig. 1780. *Rhytisma acerinum* (Maple Leaf Blotch) showing the sclerotium spots, (a) on a maple leaf. These sclerotia become wrinkled and contain the apothecia with the asci and spores. (Original).

the winter, spores are produced in cavities called *asci*, and in the spring they become mature and are liberated. In this way the infection is carried to trees in the neighborhood.

The only practicable method of preventing the spread of this fungus is to gather up and burn the leaves before the spores are set free in the spring.

(b) *Pine Leaf-Cast* (*Lophodermium pinastri*). (Fig. 1781.) Sometimes the leaves of young, seedling pines fall prematurely, and, if the leaves are examined, small, oval, black spots may be seen. These are the masses of *asci*, each containing eight spores, which rupture only after long-continued wet weather. In some of the islands of the Muskoka lakes large areas of young pine trees were completely defoliated during the summer of 1899 by this fungus.

No remedial treatment can be suggested

for this disease, especially after the mycelium has gained an entrance to the inner tissues.

Summary.—Shade-trees are liable to attacks from many quarters. Not only are insect enemies plentiful, but fungous enemies are even more abundant, and await the first favorable opportunity to make the attack. These opportunities come quite frequently during the life of an ordinary shade-tree. They come when outside conditions are unfavorable to the healthy working of the organs of the tree, when, for example, the food supply is inadequate, the drainage poor, or the water supply extreme. The tree becomes weakened, and in its weakened state cannot ward off the host of invaders. Wounds, brought on by storms of wind or hail, when portions of the bark are bruised, or branches torn off, form very suitable places for the entrance of both fungi and insects. In every case this old adage, “a stitch in time saves nine,” holds true, and frequently a little labor at the outbreak will not only save a great amount of labor later on, but also, perhaps, the life of the tree.

The chief insect and fungous enemies of shade trees have been discussed as fully as

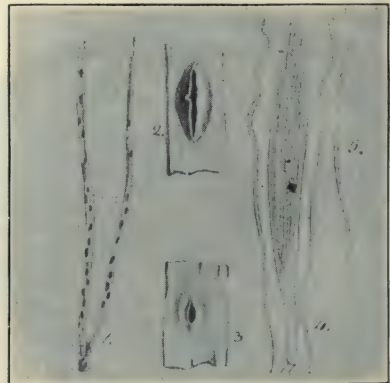


Fig. 1781. *Lophodermium pinastri* (Pine Leaf Cast), (1) leaves with the fungus. Within the apothecia are the club-shaped asci which contain the spores. (After Massee).

space would permit, and it must be inferred that the enemies are numerous. The owner who takes great care of his trees—along the lines laid down in these articles—will be abundantly rewarded in seeing his trees “things of beauty and joys forever,” while his careless neighbor will probably be lamenting his “hard luck.” Shade trees must be treated as living, organic beings—fed with

abundant nutritious food, and cared for by attending to their wounds—if they are to furnish that refreshing shade in summer, that peculiar beauty all their own, and that protection from the blasts of winter, which are so much to be desired.

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CAPE COLONY A FRUIT COUNTRY.

IT WOULD appear that this land of favored climatic conditions has solved the question of shipping tender fruits to Great Britain, and bids fair to have the most excellent success. The Gardeners' Chronicle gives the following note, viz. :

“During last month there were several arrivals from the Cape, per the Union line, the first, per the Dunvegan Castle, a small consignment of peaches, which sold well. The second, per the Guelph, was twelve cases of peaches, in fine order, which sold well. The third ship was the Norman, with 704 cases of fine plums, and 33 of peaches. There was a splendid bloom on the plums, all of which were quickly taken off, at good prices, as also were the peaches. Tantallon Castle arrived on the 3rd inst., brought 392 cases of plums, 141 cases of grapes, and 138 cases of peaches. Plums, some were Simoni, large red, in good condition, boxes of 24 running up to 12s. per box. Others were Golden Drop, fair sized yellow, also in good condition, going as high as 12s. per box of 24. Grapes were small, and slightly hard. They were the first consignment of the season, and must have been picked too early. They were practically given away at Covent Garden, 2d. per pound

being the highest price. This shows that care must be taken to send home only fruit in good condition and thoroughly ripe. This lot of grapes were brought home by a passenger who must have little knowledge of the trade. Peaches : Some were in capital condition, running up to 12s. per box of 24. N. B.—All the above fruit was sold privately at Covent Garden, not by public auction. Some peaches were sold at public auction, and, although first-class fruit, realized very low prices. The result does not seem to recommend the public auction sales. The last arrival to note here is that of the ss. Mexican, which arrived on Sunday, 11th inst, bringing 196 cases of peaches, 290 boxes of plums, 102 boxes of nectarines and 60 boxes of grapes.”

Of course these fruits from South Africa will not compete with ours, because their summer is our winter ; but if they can succeed, and cross the tropics, why can we not succeed with less distance and cooler air ?

There is no doubt a great deal of truth in the point made about the private sale of the goods. Ours are always sold by public auction, and this may count against our best success, especially while our goods are looked upon as novelties.



FIG. 1782. LODGE AND ELM AVENUE, CENTRAL EXPERIMENTAL FARM, OTTAWA.

CENTRAL EXPERIMENTAL FARM NOTES—No. 6.

THE weather has been very changeable this winter, so changeable in fact that there have been few instances where two days of the same kind of weather followed one another. At no time was there much over a foot of snow on the ground until quite recently. About the third week of January there was a thaw with heavy rains, at which time nearly all the snow disappeared, just enough remaining to make bad sleighing. The lowest temperature of the winter occurred on the 2nd February, when the thermometer registered 21.5° below zero. There was very heavy rain during the second week of February, followed by frost, and from the 16th to the 22nd February there was ice everywhere. Snow on February 22nd and 24th, was followed on the 25th,

26th and 27th, by very cold weather with high winds, the temperature on the 26th being 19° below zero, and on the 27th 18° below. Up to the 1st March there had been comparatively little snow at one time during the winter, but on that day and the next there was a downfall of 18 inches, followed on the 6th by six inches more.

NUT GROWING FOR PROFIT.

As a correspondent desires to get some information regarding nuts which were hardy in the colder parts of the province, the experience gained in growing nut trees at the Experimental Farm is given this month. It is not likely that nut culture will ever prove a profitable industry in Ontario, unless some of our native nuts are improved by cross-breeding or selection, so that they will com-

pare favorably in thinness of shell and large proportion of kernel with foreign kinds. Few nuts have a finer flavor than our shell-bark hickory and butternut, but in their present condition they are not easily cracked, the kernels are rather difficult to remove, and the proportion of shell is too great. There are already, however, in the United States some improved hickories, which have much thinner shells than the ordinary form. The wood of both hickory and butternut is very valuable, and if these two trees could be planted for their nuts, as well as for timber, they would prove even more valuable than they are now. Both of these trees are quite hardy at Ottawa, and although the shell-bark hickory does not grow naturally here it succeeds well when planted. It is a slow grower, being different in this respect from the butternut, which makes a rapid growth.

It is not likely that the black walnut will ever be improved enough to make it valuable for its nuts. It is quite possible, however, that hybrids between this tree and the Persian or English walnut (*Juglans regia*) would produce fruit of good quality and prove hardy in the northern parts of the province. One hybrid between these species, *Juglans Vilmoriniana*, planted in 1897, is quite hardy so far. The English walnut is not hardy at Ottawa, killing back nearly to the ground every year, but the black walnut is perfectly hardy, producing nuts when from nine to ten years of age. Two years ago, however, nuts of the Persian or English walnut were procured from the mountainous districts of Turkestan, where this nut is grown on a commercial scale, and where

the winters are very severe. Yearling trees came through last winter without killing back, but they were well protected with snow. It will be interesting noting how this winter affects them. A Japanese walnut (*Juglans sieboldiana*) is perfectly hardy at Ottawa, and bears nuts when from eight to ten years of age. They are of good flavor, very much resembling in this respect our native butternut, but the proportion of kernel is so small that they are of no commercial value here.

The European filbert or hazel nut (*Corylus avellana*) does not succeed in the colder parts of Ontario, nor will it set fruit in the more favored parts of the province. At Ottawa the wood, in many cases, kills back, but there are specimens growing here which are almost hardy. The reason why the nuts do not set is that the pollen from the male flowers is shed before the female flowers are in a condition to receive it, the result being that the latter are not fertilized and no fruit forms. We have, however, two good hardy native hazels in Canada, *Corylus rostrata* and *C. americana*, which produce nuts of good quality, and which possibly may be improved.

The American sweet chestnut (*Castanea dentata*) is not perfectly hardy at Ottawa. A few trees, however, out of many tested are quite hardy and have flowered and produced nuts, but no kernels were developed.

It would be an interesting work for someone to try and improve our hardy nuts by selection and hybridization.

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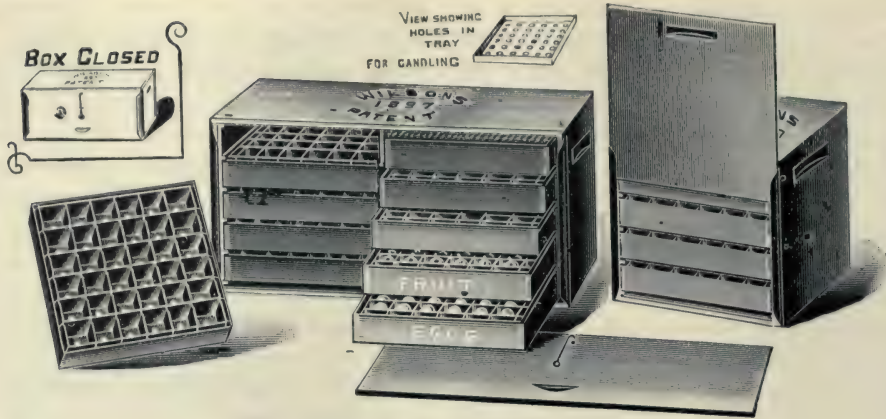


FIG. 1783. THE WILSON FRUIT CASE.

INGENIOUS PACKAGES.

THE agitation over inspection of fruit packages has given rise to several new inventions of packages adapted for the purpose. The barrel is notorious for being packed fraudulently, and cannot

be inspected without emptying out the whole contents, and for these two reasons a different package for high grade stock is being proposed. In our regular shipments we have been using a bushel case 24 x 12 x 12 scant, which when filled weighs about 55 lbs., and holds about four layers of $2\frac{3}{4}$ inch apples, of four apples wide and eight long, or in all 128 apples.

During the winter just passed two new fruit cases have been patented, one by Mr. E. H. Wartman, of Kingston, the inventor of the fruit grader and which is shown in Fig. 1784, which affords an easy method of removing each layer on its tray and replacing the whole without disturbing them. Mr. Wartman writes, "I forward you a photo of my new patent fruit box, known as Wartman's Safe Shipping Fruit Box. It has two points worthy of notice, (1) every apple or pear can be inspected in five seconds without disturbing one apple or pear. (2) The reversible padded trays keep the fruit from bruising, as each apple is slightly imbedded in a pad, which also acts as an absorbent of moisture."

The other fruit case has been invented by Wm. Wilson, of London, Ont., the inventor of the well known egg case, and the differ-



FIG. 1784. THE WARTMAN FRUIT CASE.

ent forms and trays with fillers are well shown in the accompanying engraving.

The special features claimed for this tray are the convenience of inspection, and perfect carriage of fruit. Mr. Wilson, the inventor, writes of it, "Cases will be made of various sizes to suit the apple trade. It will be observed that fillers are used to keep each apple intact in its own compartment. The size of the filler determines the size of the case, it is intended to make the fillers $2\frac{1}{2}$ inch cube, $2\frac{3}{4}$ inch cube and 3 inch cube, putting eight fillers and trays in each case, and as each tray and filler holds 25 apples there will be 200 apples in each case, and it is estimated that this case complete can be sold to shippers in quantities at 50 cents each. I think the various advantages of my case will speak for themselves, especially the convenience for instant inspection of all contents: and as the Dominion Government are now contemplating official inspection of all export apples, I trust the merits of my case will be somewhat more appreciated than in the past, for both egg and fruit shippers have been against me because my case showed up everything. The trays and fillers have been hitherto made of ordinary stiff strawboard and cardboard, but we will now

try and supply some of the best moist-proof, odorless spruce-fiber."

These cases seem to evidence a move in the right direction, and when we have tried them we shall be able to give some definite opinion as to their suitability to the purpose. We must however object to any apple or pear package holding over a bushel. For a larger package than a bushel the barrel cannot be supplanted, but for the retailer of choice samples an attractive box holding from 20 to 50 pounds of fruit, easily lifted and carried about, is the thing wanted.

Whether these packages are too high priced is an important question. Packages already eat up a large portion of the fruit grower's income, and we must decidedly object to any increase in this direction. The ordinary bushel box without partitions costs only 11 cents, and the wrapping paper only three cents, so that is only about 14 or 15 cents a bushel, or little more than the barrel. Possibly for some extra fancy Wealthy or Snow apples a higher priced package might be indulged in if it met a proportional high class trade, as indeed the Cochrane fruit case seems to have done, a case that is more expensive than the Wilson case.

THE CODLING MOTH.

Brothers, in Green's Fruit Grower, gives the following as his experience in combatting this enemy, and it will be interesting to us in view of our own efforts to stop its ravages:

Having stored large quantities of apples in his cellar he has attempted to destroy the codling moth that may have remained in the barrels, or that have escaped in the cellar, by burning sulphur, but concludes that this sulphur burning did no good. He thinks boxes and barrels in which apples have been wintered should be scalded before using again.

He has sprayed his orchards with one pound of Paris green to 200 gallons of water. The first

time, May 31st to June 3rd, beginning just as soon as the blossoms have fallen. The second time he sprayed June 13th to 16th, and the third time June 24th to 27th. He also puts bags and sacks on the trees the first week in June and took them off for the first time July 4th, and caught 200 worms from 750 trees. The second time he took off the bags July 15th and caught 997 worms. He took the bags off again August 2nd and August 12th, also August 22nd and September 6th, catching the most worms the last time the sacks and bags were removed, but caught a large number at each removal. The last time he took the bags off, which was the last week in September, he found 2,315 worms. He has so far relieved his apples of the codling moth, whereas formerly, without treatment, about 90 per cent. of his apples were wormy; now 90 per cent. of his apples are free from worms.

THE QUEBEC FRUIT GROWERS.

SIR,—Permit me, as the delegate from the Ontario Fruit Growers' Association to the Pomological and Fruit Growing Society of the Province of Quebec, to give your readers a brief report of my visit.

The meeting was held this year in the beautiful and prosperous town of Granby. The attendance from a distance was very good, but for some reason there was not much interest shown by the townspeople. I have learned that in former meetings the attendance has been large.

The Society, unlike our own, holds a summer meeting, which allows the members to become acquainted with the fruit growing and fruit growers of various parts of the Province. The number of members is small compared with ours—about 100. They have no periodical such as the *Horticulturist*, owing to the fact that such a work would need to be printed in two languages, which would make it too expensive. Thus they have no common medium of exchange of ideas except their two annual meetings. They have not yet our splendid local horticultural societies to increase their membership.

Though thus handicapped, still the Society is doing a splendid work, and is full of enthusiasm. The papers read, and the discussions carried on showed that they were not a whit behind the Ontario Society.

Your representative was most cordially received, and your fraternal greeting warmly reciprocated.

They appointed a committee to consider the resolutions passed at our Whitby meeting re the packing, grading of fruit, and the marking of packages.

They reported favorably, but suggested some variations in the marking of packages.

The sessions were made interesting and profitable by the presence of Prof. Waugh,

of the Vermont Agricultural College, Prof. Macoun and Prof. Fletcher of Ottawa, and Prof. Penhallow of McGill.

Some of the good points made by the speakers are following: 2% of Bordeaux mixture will destroy mustard without injuring the grain. J. C. Chapais has the most northerly orchard in Canada, at St. Denis. He can grow Fameuse, St. Lawrence, and many others; also better cherries than Montreal. The Trabische is his hardest plum. The white Alpine straw berry bears fruit from June 15th to October 15th. His Alexander apples were the largest sent from Canada to the Paris Exposition. W. Craig, jun., spoke on roadside trees. He would plant our own native trees, and not closely together. He would advise trial planting of walnut trees. Roadside trees raise the price of the land, and provide shelter from winds.

Prof. Penhallow gave a valuable paper on the History of Horticultural Societies in the Province. 1854 saw the formation of the first society at Montreal, and 1875 its revival. Chas. Gibb was the first promoter of fruit culture in the Province.

Mr. Thomas Slack, in his paper on "Intensive Cultivation," advised good seed, good soil and good cultivation. Weeds are the lazy man's friend, because they compel him to cultivate his crop. He finds it profitable to raise lettuce in winter under glass for the Montreal market.

Mr. Brodie, in his paper on "The Culture of Celery," said that he raises the White Plume, and does not plant in trenches. He does not cover the crowns. The pink and red varieties are best in quality. For wintering the dwarf is the best.

Mr. Grindley and Mr. Shepherd, who have had extensive experience in shipping fruit to the British market, gave some valuable in-

formation on best kinds to ship, and how to pack. Barrels with straight staves, or boxes should be used, whereby slackness and bruising would be avoided. The engineers, who control the temperature on shipboard, do not honestly keep their log books of the temperature. Butter is often put in same hold as fruit. Butter requires 26° of cold and apples 34°. The fruit becomes chilled, and even frozen, and when landed looks well, but soon rots. Hay also is put in same hold as apples, causing mould. An inspector should be sent with each fruit vessel. Ship but few kinds and in large lots, as California and Nova Scotia do.

Prof. Waugh spoke on "Horticulture in Literature." He gave an exhaustive ac-

count of the subject, embracing all the classical writers, such as Hesiod, Virgil, Pliny, etc., and the best modern writers, such as Fessenden, Cobbett, Henderson, Bailey, etc. He spoke very highly of our "Horticulturist."

Prof. Macoun said that spraying should be specially done in years when the crop is small, or when insects are few, for then the rings and eggs of tent caterpillars are smaller and fewer from want of food.

Extreme cold does not affect insects.

The plum curculio affects apples in Quebec.

The remedy for the borer is soap wash in June.

For the apple maggot, pick up and destroy fallen apples.

SUMMARY OF FRUIT GROWING AT ABBOTSFORD, P. Q.



ABBOTSFORD is situated at the base of the Yamaska Mountain in the County of Rouville, P. Q., about forty miles east of Montreal, and for many years has been noted for its fruits both at home and abroad, which thrive in a porous, gravelly soil naturally adapted to the apple, on the slopes of the second trap mountain east of St. Hilaire.

No doubt the early settlers brought with them cuttings of their choicest plants and vines, and seeds of their favorite fruits as a nucleus of the family garden and orchard, which are numerous; numbering many commercial orchards containing most of the hardy varieties of the apple, pear, plum, cherry, grape and other small fruits which it is possible to grow in a climate where vegetation is liable to be injured by frost during nine months of the year.

The first seedling orchard at Abbotsford was planted by one Joel Frizzle, of about one arpant in extent, and it came into bearing in 1812, or earlier.

The first grafted trees were brought here

in 1810, by the late Col. O'Dwyer, and consisted of three varieties; the Blue Pearmain, Late Strawberry or Foundling, and a Flat Graft, an apple of good quality whose name was lost. These trees were procured from the Spalding nursery at Shefford Mountain, the scions of which came formerly from the New England States.

The Fameuse, Pomme Grise, and Bourassa, were brought from Montreal in 1826 by the late Rev. Joseph Abbott. Grafting was introduced in 1823 by the late Samuel Jackman, and the art of budding in 1846 by the late Rev. Thomas Johnson.

The first regular commercial nursery was established in 1857 by N. Cotton Fisk, and some others followed on the same lines, when the Abbotsford grown trees were much sought after by planters, and now at the close of the 19th century forms the foundation of many a valuable orchard through the Province of Quebec.

The Fruit Growers' Association of Abbotsford was organized in December, 1874, and may be styled the pioneer society, as it was

the first county, or local organization of the kind in the Province. In 1875 it published after much correspondence and discussion with over a hundred persons, exclusive of Abbotsford, the first fruit list of the Province of Quebec, containing much valuable information as to the best and hardiest varieties of the apple, pear, plum, cherry, grape and other small fruits adapted to our climate. It held its first exhibition on September 20th, 1876, and after holding three exhibitions, and publishing a fruit list at considerable expense, it received its first Government grant of fifty dollars in 1879.

In 1884 importations were made by the Society of Russian apple trees, from the North Western States, and also Russian and North German pear, plum and cherry, from the Academy at Petrowskoe Rosumowskoe, near Moscow; from this last importation all available scions were cut and set upon root grafts, and during the period between the years of 1884 and 1890, no less than 1285 trees were distributed to the members, and as these were necessarily planted on a variety of soils, entailing different exposures, each member practically became an assistant in testing these new fruits, which in most cases have proved more hardy and productive than many of the old varieties, though often lacking in quality and keeping propensities.

In 1893, application was made by several of the leading fruit growers of the Province of Quebec to the Provincial Legislature to incorporate a Provincial society under the name of "The Pomological and Fruit Growing Society of the Province of Quebec," which was granted by the Government in January, 1894, when a meeting was convened and held at Abbotsford on the 8th and 9th of February, attended by delegates from different parts of the Province, as well as from the Experimental Farm, Ottawa. Mr. J. M. Fisk was moved to the chair, and after some discussion it was deemed but just to

Abbotsford that the first president should be an Abbotsford man, consequently the mantle fell upon the chairman. A committee was named to divide the Province into nine electoral districts, after which a Director was elected to represent each district, a constitution adopted, and many interesting papers read, which brought out animated discussions. The Society is still carrying on the good work, holding a summer and winter meeting in different parts of the Province; and as the transactions of these meetings are reported, and published by the Government in both the English and French languages, they form a source of great value from an educational point of view, and should be in the hands of every fruit grower and farmer of the Province.

Cider making has been in vogue here for upwards of seventy-five years, bringing into use almost every known device for crushing and pressing the apple, from the old sweep cog-roller and lever cheese press to the most modern horse-power fluted roller and screw press; and for family use, the improved Buckeye hand press mills.

In 1897, Mr. Robert Gillespie erected a cider and vinegar plant, introducing the "Gould Generator," quick process system for making vinegar, and with "The 20th Century Multiple Filter" a superior quality of vinegar is manufactured and placed upon the market.

In 1898, petition by the Society was made to the Government for a special grant, and the privilege of using its funds for that year, (instead of holding an exhibition) to co-operate towards the erection of a Parish hall in which the Society could hold its meetings and exhibitions, which was granted, placing the Society in a position heretofore not enjoyed.

Spraying was introduced in 1888, and is still followed by most of our growers with beneficial results in combating both the fungous and insect pests; and by this means,

with good cultivation and pruning, our fruits are classed among the best, and find a ready sale both for the export trade and home consumption. And it also places them in the first ranks upon the Exhibition tables of the world, having appeared from time to time on most of the Exhibition tables of the Province, as well as upon those of the Centennial at Philadelphia in 1876, the Intercolonial and Indian at London, England, in 1886, the World's Fair in Chicago in 1893, and now, at the close of the 19th century, we hope to be creditably represented at the Paris International Exhibition of 1900.

It would be unseemly to close this summary of the fruit interest of Abbotsford without referring to the late Chas. Gibb, who for seventeen years was the leading spirit and promoter of the fruit interest of the Province.

Mr. Gibb first visited Abbotsford in 1872, and so pleased was he with the impetus already given to fruit growing, that he decided to throw in his lot with us, and purchased a farm of 120 acres favorably situated for orcharding, upon which he settled in March, 1873, and at once entered upon his new field of labor with the zeal of an enthusiast.

Being possessed of considerable means he

was enabled to carry out many a well formed plan of travel, through which he introduced many varieties of new fruits, as well as species of ornamental and forest trees, having at one time on trial no less than 145 varieties which were not natives of this Province; the survivals of some of the hardiest of these adorn our roadsides as shade trees at the present day.

His grounds were also turned into an experimental testing station for almost every conceivable variety of fruit which could possibly be grown in northern climates; and his many writings on fruit and arboriculture are accepted as authority from one who knew whereof he wrote. Besides visiting most parts of Canada and the U. S. A., always with the fruit interest in view, he twice visited Russia and Northern Europe. First in 1882, in company with Prof. J. L. Budd, of Ames, Iowa, and again in 1886 alone. In June, 1889, he left on a tour of research around the world via Vancouver, Japan, Hong Kong, Ceylon, Calcutta and Bombay; and while at Cairo, Egypt, was seized with a fatal illness and died on the 8th March, 1890, thus ending a life patriotically spent in the interest of his country.

Abbotsford, Que.

J. M. FISK.

DISTANCE BETWEEN TREES OR PLANTS IN PLANTATIONS.

Standard Apples, 30 to 40 feet apart each way. In poor soil, 25 feet may be enough.

Standard Pears and Cherries, 20 feet apart each way. Cherries will do at 18 feet, and the dwarf growing sorts, Dukes and Morellos, even at 16 feet.

Standard Plums, Peaches, Apricots, and Nectarines, 16 to 18 feet apart each way.

Quinces, 10 to 12 feet apart each way.

Dwarf or Pyramidal Pears, Cherries and Plums, 10 to 12 feet apart each way. The greater distance is better where land is not scarce.

Dwarf Apples, on Paradise stock (bushes) 6 feet apart.

Currants, Gooseberries and Raspberries, 3 to 4 feet apart.

Blackberries, 6 to 7 feet apart.

Grapes, 8 to 10 feet apart.

LANDSCAPE GARDENING—IV.

IN the making of fine gardens and the arrangement of decorative plants, more particularly those which are used for a summer decoration, there is room for a new profession, which even now is practiced, but is not distinguished from the practice of the landscape architect. It requires a thorough knowledge of this very large class of decorative plants, with the skill and taste necessary to make brilliant, yet refined and artistic, combinations, not only harmonious in themselves but harmonizing with their surroundings. Such a profession has already been called ornamental gardening. It is not gardening in the sense of growing of plants. To have the knowledge and skill to grow the many plants and their varieties now cultivated, and at the same time to keep up with the new introductions, will tax the resources of a very active brain; there are few that can do it. Many gardeners are skilful in arranging combinations of garden plants; perhaps some of them would be more successful at ornamental gardening or designing than at gardening. It is certain that there are landscape gardeners, and probably already ornamental gardeners, who cannot successfully grow all, and perhaps can grow only a very few, of the plants they use.

There are fashions in gardens and fashions in plants, and too often a plant is considered essential because it happens to be popular. The ornamental gardener who is working for an artistic result will not hesitate to use the commonest weed, if it furnishes just the shade, texture, or form that he requires—the common burdock perhaps, or silver weed.

The beautiful landscape of a park will never go out of fashion, and the landscape architect in producing such, uses plants as a painter uses his pigments in painting a picture. He paints in a broad way; the minutiae of detail of the garden and the lawn would not only be lost to the eye but would

very likely defeat the very object he is working for. With him the garden standard of value counts for little. Very common plants like the willows, cat-tails, and sedges, or even the common rhubarb, may make the foundation of a picture that will challenge the admiration of the critic and even of the multitude.

There is more or less fashion displayed in the planting of a lawn; it would be better if the vagaries of fashion were confined to the garden, and that the lawn should partake more of the character of a bit of landscape, or a grassy glade, or opening in the midst of shrubbery or wood, for it is not always that the breadth of view, which makes up a landscape, can be secured in or across a lawn. It should have a beautiful fringing of green, varying in texture, color, and outline, with a frequent glow and constant sparkle of flowers, with groups and fine individuals breaking out from the bordering masses, but not interrupting the open centre of the lawn, excepting to increase the appearance of distance. You would expect to use a larger assortment in the lawn than in a distant border plantation,—more exotics and more of the garden varieties having variations in flower,—but certain reliable varieties should predominate and establish a character for the planting which will be in keeping with the character of the place. The position of groups on the lawn will be governed by the views and by the topography of the ground. In general, elevations will be planted high and depressions low, or not at all, to increase their apparent height or depth. The planting would be arranged so that a slope would be away from it rather than toward it. A border plantation having an irregular edge with points and depressions, gives more opportunity for variety and more effects of light and shade than a straight edge. Groups and individuals would in general be used to

increase the prominence of the points—not to fill up the bays. In selecting plants, the greatest care must be taken not to select too large growing kinds for the places they are to occupy. A border plantation should be an irregular mass of foliage rather than a series of distinct individuals. To produce such an effect, thick planting is usually best, for a quicker result is secured; also a more natural and graceful outline, and less care and cultivation are required. The plants will thin themselves naturally, but it is, of course, better to do a little thinning and training every year to encourage the development of interesting details, but it should be done with a definite object in view. Unless this can be done in an intelligent manner under the close direction of some one who comprehends and is in sympathy with the design, it would be safer not to have it done at all. There is no good reason for trimming shrubs, as it is ordinarily done. Surely nothing could be more ugly than the broom-headed shrubbery which is seen on many lawns, both public and private. A decoration of fagot street brooms would be about as handsome as much of it. It is neither natural nor formal. If a place is adapted to a formal treatment, and is so treated, the selection of plants to be trimmed formally would not include an indiscriminate assortment of garden shrubs, but would be made up only of those that were adapted to this treatment. Too often men who call themselves gardeners are responsible for the almost universal mutilation and misplacing of shrubs, and I believe I am safe in saying that many who are gardeners are often guilty. It would seem that the gardener's training is directed toward making successful growers of greenhouse and garden flowers and vegetables, and that there is seldom acquired anything more than a very superficial knowledge of the commonest hardy woody plants and their treatment.

If the ground has been thoroughly prepared in the beginning and a good top-

dressing is given every winter, but little further cultivation will be required after the plants have become established and have grown sufficiently to cover the ground. There is no more occasion to tear up the surface, and with it the surface roots every spring with spade or fork, than there would be to tear up the surface of a beautiful roadside thicket to keep it in good condition.

Shrubs and small trees should predominate in a small place. That very large trees cannot be used to advantage should be evident to any one giving thought to the subject, yet you will see in the majority of places large growing deciduous and evergreen trees placed so near the walks or buildings that they will in a very few years become obstructions. Broad-leaved evergreens, while more expensive, are as a rule better and more permanent for a winter effect on a small place than coniferous trees. The best plants are those which are nursery grown. Wild plants of certain varieties, if properly handled, will transplant well, and produce a good effect, but without experience in handling such plants the result is likely to be unsatisfactory. It is very difficult to get native plants of many kinds in large quantities from the nurseries, and it is in this that the landscape architect can often help to good advantage, as it is usually part of his practice to keep informed as to where such plants can be obtained.

The employment of a trained gardener on a small or medium sized place is not practicable. Men offering themselves as gardeners at day laborers' wages are more likely to bring discredit than credit to a profession that requires for success, intelligence, enthusiasm, and a true love of the work. A good gardener loves his flowers and plants next to his family, and is as impatient of neglect and bad treatment of the one as of the other. Such a man soon finds and stays in a good position with fair pay,—not as much as his skill and intelligence deserve perhaps, but in many ways preferable to

other work where more dollars per day are earned. I believe it is safe to say that the majority of those who call themselves gardeners, who are drifting about and ready to accept a position at any price, are not safe men to have on a place. Their assurance is in proportion to their ignorance, and by taking advantage of the ignorance of their employers they can do more damage to a place than the proprietor himself could, however ignorant of gardening. For this reason I believe it is safer for him to employ a willing and industrious man who lays no claim to a knowledge of gardening, but who will do as he is told, and give him directions how to do the work on the place. If errors are then made, they will only serve to increase the knowledge and interest of the proprietor.

In this writing I have had in view small or medium sized home places especially. I have hardly touched on the service the landscape architect may be to the real estate owner in planning his property to avoid steep grades and heavy cuts and fills, in preserving and developing the natural features of the place, in so arranging the lots that each may be accessible and have as nearly equal advantages as possible, and in planting to utilize the material on the grounds; to the village, town, or city in designing public recreation grounds and the surroundings of public buildings, advising with regard to street tree planting or roadside improvement; to cemeteries in designing the grounds and their decorations; to public amusement resorts in providing a convenient and pleasing arrangement of buildings and grounds, laid out in a manner to educate rather than to degrade public taste.

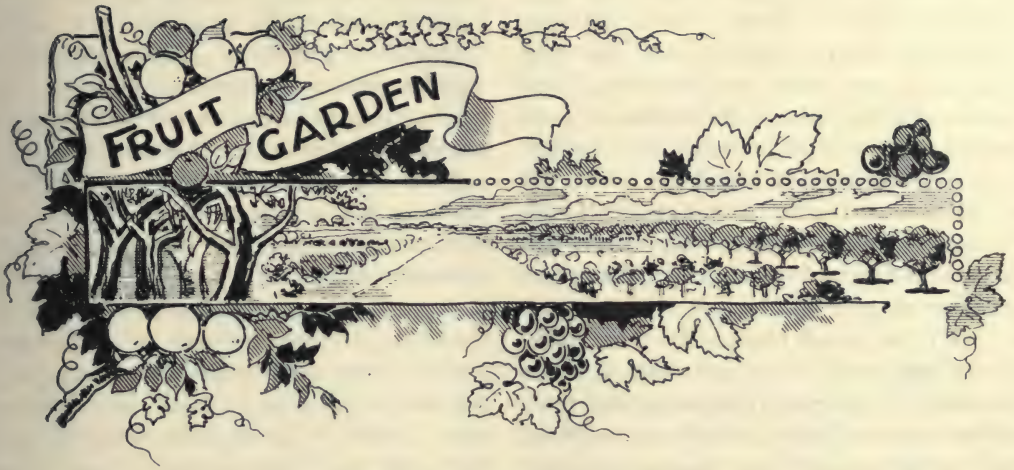
Some information as to the methods employed by the landscape architect, or landscape gardener, in carrying on his profession may be of service to those who contemplate employing such assistance. Some make a charge for their plan, a profit on the men employed in superintendence, and also a profit on the plants used, which they supply

partly from nurseries of their own and partly by purchasing from other nurseries. There are others whose practice is the same, except that they have no nursery of their own or no personal interest in one. Others prepare plans and superintend the construction for a percentage of the cost, and still others contract for a specified sum to design, furnish all material, and construct a place. Where it is taken up as a profession purely, the practice is to make a charge for general design and report also for working drawings, estimates of cost and superintendence. Such charges are usually based on the difficulty of the undertaking rather than on the cost. On any purchases of materials that are made it is the practice to give the client the benefit of the lowest rates which frequent and often large purchases enable the landscape architect to procure.

Where a trained landscape architect is not available and the proprietor or any of his family has not the time or disposition to study into and direct the work, then the safest course would be to trust to your local florist, nurseryman, or contractor, securing from him an estimate of the cost in advance. You can hardly expect to get very artistic or original results, for the greater part of their time and thought must be given to the successful conduct of their business, of which this forms only a small department. It is very often to the local florist, nurseryman, or contractor that the landscape architect looks for his skilled assistance in carrying out the details on a place, under the direction of his trained assistants who are familiar with the plans and the results desired.

I believe the time is not far distant when the man who is to build a new place, or remodel an old one, and who wishes to secure the best and most economical result, will call in the landscape architect to help him plan the ground, as he now calls in the building architect to help him plan the building.

Boston, Mass. W. H. MANNING.



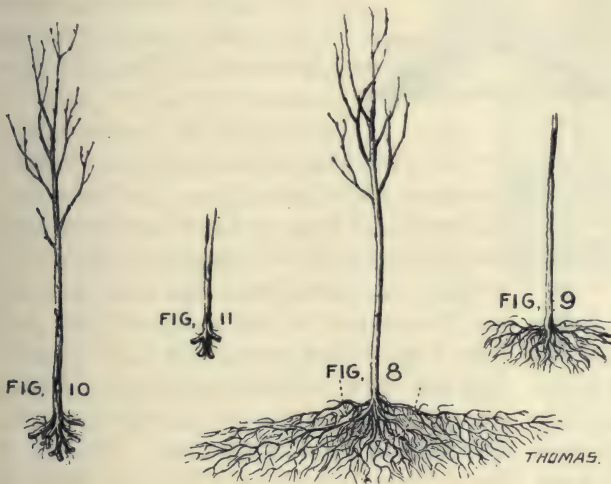
FRUIT CULTURE—III.

SELECTION OF TREES AND PLANTING. With all trees a medium-sized healthy tree with good fibrous roots is to be preferred to larger and older stock. If possible it is better to buy the trees from some reliable nurseryman in your

spect. Fig. 8 represents the tree as it stands in the nursery row. In Fig. 9 is seen a tree dug as it should be, with a fair proportion of the fibrous roots. Fig. 10 is an example of too many of the trees sent out, and Fig. 11 represents the worst form.

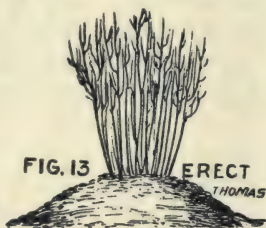
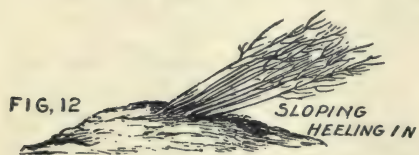
In Ontario generally, and with nearly all fruits, spring planting is preferable to planting in the fall. Most nurserymen, however, dig the trees in the fall, and the purchaser is often in a better position to buy them then, and they can be 'heeled in' for the winter with little trouble or risk. A place where the ground is mellow and well drained should be selected, the bunches of trees should be opened up and the earth well packed in among the roots. If mice are likely to bother, heel in the trees in an erect position in a sheltered place. Otherwise a sloping position as in Fig. 12 is better, with earth covering a good part of the stem.

When trees are received from the nursery in the spring they should also be heeled in carefully till wanted. Too many trees are lost from a neglect of this practice. Any



own locality. Trees will then not run so many dangers in transplanting, and the purchaser may often see them dug himself. It makes a considerable difference as to how trees are dug from the nursery row, and there is always gross carelessness in this re-

trees received with very dry roots should be placed in water for a time, or better, in mud. In planting, and this applies to all trees and bushes alike, the holes should be dug large enough to take in the roots without cramping, a few shovelfuls of moist and mellow top soil packed firmly round the roots, the hole filled in and firmed thoroughly to within a couple of inches from the top, where the dirt should form a loose mulch. Manure or fertilizers should not be put in direct contact with the young roots. The firm packing of the earth is very important. The trimming of the tops of the newly-set trees will be spoken of later, as different methods apply to the various trees, vines and bushes; but in all cases the bruised and torn roots should be trimmed off before planting, and exceptionally long roots may be cut back to correspond with the rest of the system.



THE VARIETY QUESTION.—This important phase of fruit culture is one upon which endless questions are asked, and upon which advice is often a difficult and dangerous matter. The man who plants for his own use requires, in addition to hardiness and a fairly productive habit, high quality in the fruit. He who is planting for commercial purposes will rate productiveness and a showy appearance far higher than quality. The question is more complicated from the fact that local conditions have a strong effect on the behavior of varieties. To such an extent is this true that a variety successfully grown in one district may be almost worthless on different soil and with a slightly different climate. Any varieties named in the follow-

ing chapters will be such as have been tested under a good many conditions and over a large extent of territory. A few suggestions may be offered to intending planters. Do not buy largely of any variety simply on the recommendation of the nursery agent. Nurserymen, it is true, try to grow chiefly the varieties that are most called for, but they naturally propagate new varieties to a considerable extent, and also have a natural preference for varieties that grow easily and thriftily. The nurseryman is only human and he very reasonably, therefore, pushes the sale of his surplus stock. If that surplus consists of undesirable varieties somebody will eventually be hurt. Lots of our nurserymen are honorable men, well posted in their business. The purchaser is safe in such hands. But to buy from an irresponsible agent, varieties of which the purchaser

knows nothing, simply from the glowing description given by the seller, is courting disaster, indeed. Eschew new varieties except to a small extent for testing purposes. Ninety-five per cent. of the new varieties come on the market with a

flourish of trumpets and descend to an inglorious grave within a few years. Let the intending purchaser make up his mind what kind of tree he wants—hardy, productive, early, late or what not—and then if the requisite qualities are claimed for any particular kind, find if such variety has been tested in his district. If it has not it would be wise on his part to enquire about it from the Horticultural Department at the Central Farm, Ottawa, or the Ontario Agricultural College, or write to the nearest fruit experiment station.

INSECTS AND FUNGI.—Nobody who takes up fruit culture, even in a small way, can expect to achieve success without some knowledge of insects and fungous diseases. In the Farmers' Institute Report for 1896-7

will be found a capital outline of entomology, written by the late Prof. Panton. Anyone who carefully refers to that article will be able to get a good grasp of the subject. The bulletins issued by the Department of Agriculture entitled "Instructions in Spraying" touch on insects also, as well as the various fungi, such as apple scab and grape mildew. Spraying, though not always a sure cure, will generally successfully control our insect and fungous pests. Success, however, will not be achieved unless there is a right understanding of the nature of the enemy, and prompt and thorough measures taken on the grower's part. Neither the amateur nor the professional can afford to produce fruit of an inferior kind, and it will be a red-letter day for Ontario when her fruit-growing population realizes the fact.

THE APPLE.

After all that may be said in favor of pears, plums and peaches, the apple, as far as Ontario generally is concerned, must remain the king of fruits. The keeping qualities of this fruit, the durability of the tree and its adaptability to so wide a range of climate and soil will always make it the staple amongst fruits. It has been demonstrated over and over again that the apple orchard, thoroughly cared for, will be one of the most profitable parts of the farm. Apple growers, generally, are becoming alive to the fact that, with proper methods of grading and packing, the market is practically limitless, and no intelligent man need feel uncertain as to whether or not the planting of an apple orchard will be a profitable investment.

THE SOIL.—The apple will thrive on a greater variety of soils than, perhaps, any of our fruits. Hard, shallow and wet lands must, however, be avoided. As long as the soil is porous and friable, and the subsoil not too compact, success can be achieved on all

soils from sand to clay. Thorough preparation of the soil before planting must be insisted on. It is better to plant on land previously occupied by hoe crops, such land being usually both clearer and in a better mechanical condition. A clover sod plowed the previous fall and thoroughly worked in the spring will also be satisfactory. The site should have a northwesterly or northerly exposure. These matters have been referred to at greater length in the opening chapters on "General Principles."

BUYING THE TREES.—It is usually best to purchase the trees in the early fall, but with the stipulation that they shall not be removed from the nursery row till the leaves have



fallen and the wood ripened thoroughly. The subject of fall or spring planting is a much discussed one, each plan having its advantages. There is often more time in the fall to do the necessary work, and if the fall planted trees gets thoroughly established it will no doubt stand a dry summer better than the tree planted in the spring. But the question of the tree ripening its wood before being dug is important. Young trees planted in the fall with wood not matured, when subjected to the severe cold and dry-


ing winds of winter, will be hardly likely to survive. In the colder districts the fall planted tree will in any case have a trying time the first winter and on the whole the consensus of opinion is decidedly in favor of spring planting. Select nothing but well-grown, clean-barked, healthy trees. If any dark discolorations show, where limbs were pruned off the previous year, it indicates poor constitution and the tree should be rejected. Such trees may have what is called "black heart," and will rarely develop into good specimens of the vigorous thrifty kinds. A tree two years old from the bud or graft is

to be preferred to older stock. In any case do not plant a tree more than three years old. The younger tree will usually have a more fibrous root, and in nine cases out of ten will outgrow the older stock. Reject also any trees having root-galls, such as are illustrated in Fig. 14. Though little is known of these gall growth, there are grounds for suspecting their contagious character, and it is safer not to plant affected trees.

M. BURRELL.

St. Catharines, Ont.

SPRING CULTIVATION OF VINEYARDS AND ORCHARDS.

 S spring approaches, it is the one thought, what will be the best way to work up our vineyards, or orchards, so as to have the ground mellow all summer, and in what way it is best to leave it in the fall to resist the frost and at the same time drain off the surface water? Many growers advocate ploughing up to the vines in the fall, and ploughing away again in the spring; others plough two or three furrows up to the vines in the fall, and complete the ploughing up to the vines when spring comes, after rolling down, and working the same with the disc harrow. And again another method is used:—In the early fall sow rye or crimson clover, which certainly holds the snow and serves as a covering, at the same time furnishing a valuable manure in the spring when ploughed under. But does not that plan of turning over all the soil in the fall (whilst draining the soil well) give the winter frost too good a chance to penetrate the soil and kill the roots, as was the case in that severe winter of 1898 when it was plainly shown that where orchards and vineyards had not been fall ploughed there was hardly any loss from frost killed vines and

trees, whilst where the soil had all been ploughed in the fall the frost had got down very deeply and killed many hundreds of vines and trees, and this could clearly be seen in orchards and vineyards, side by side, and so the question presents itself which is the best way for spring and fall cultivation. Here is one which the writer has practiced for many seasons, and has proved the usefulness of it, especially in that severe winter of 1898:

Early in the spring the grape hoe is put in the vineyard or orchard and three furrows are drawn away. A man following with a shovel cleans out any dirt remaining around the tree or vine. This throws all soil and weed seeds right out. This done, the gang plough throws up to the vine or trees all the soil, after which it is well rolled whilst moist, rolling down at noon and at night what was ploughed in morning and afternoon; it can then be left for a while, and is in good condition for the disc harrow which is run through about once a week in the growing season. As the fall draws near reverse the disc so as to throw up the soil to the vines or trees for the last three or four times the disc is run through. This

leaves the soil high and at the same time in good shape for drainage ; in this way the soil has time to settle and pack before the winter's severity, and frost at the root.

Vineyards and orchards worked in this

way very successfully resisted that disastrous frost of the winter of 1898, which caused such loss of plant life in many orchards and vineyards.

JUNIOR.

Winona.

THE BEN DAVIS IN NOVA SCOTIA.

SIR,—Perhaps the discussion as to the thrift and hardiness of the Ben Davis has already been sufficiently extended, but, since the quotation from the Nova Scotia Fruit Growers' Association's report, given on page 63 of the February Horticulturist, has implicated me somewhat, may I give my own opinion of the matter. In the first place I do not see how any one could draw the conclusion from what was given in the report above cited that the Ben Davis was either "delicate" or "of short duration." It is stated that it is slow growing, but Mr. Donaldson's objection was that the Gravenstein would "outgrow the Ben Davis," not so much because it was a more rapid grower but because of its well known habit of making a comparatively few large branches instead of dividing up into a number of smaller branches as is the habit of the Ben Davis. But this is a question entirely aside from the one of hardiness and thrift. As to these latter points my own opinion, formed from observing this variety both here and in the west, is that there is no other sort which is more thrifty growing or more free from disease. And the only objection which can be urged against planting it here is the one given by Mr. Parker, that we can grow better varieties. Yet, so far, the Ben Davis has given good profits to those who have grown it, and since it is such a healthy tree, it will make capital stocks on which to top-graft other sorts when the Ben Davis has been superseded by some other variety with more juice and less wood in its fruit.

F. C. SEARS.

Wolfville, Nova Scotia.

SIR,—When I saw Rev. Father Burke's article in the December number of the Horticulturist I intended writing a correction of the views he attributed to me regarding the Ben Davis apple in Nova Scotia and P. E. I., but on second thought decided to put myself right at the forthcoming meeting of the P. E. I. Fruit Growers' Association. This I did so far as stating my opinions regarding the Ben Davis for propagation in Prince Edward Island. The publication of Mr. Parker's letter in your February number seems to show that a misapprehension will not down until it is plainly corrected. My remark to Father Burke had regard *only* to the character of the variety in question as a *fast grower* which was based, as far as Nova Scotia opinion was concerned, on the discussion on page 97 of the Nova Scotia Fruit Growers' report for 1898. I certainly did not say that the Ben Davis was regarded as delicate either in Nova Scotia or Prince Edward Island.

The durability of the tree as the producer of marketable apples in the Lower Provinces is a point which was raised by Prof. Craig in his address at the Nova Scotia Exhibition of 1899, and calls for careful consideration. Partizanship for any variety based on insufficient experience should be avoided.

D. FERGUSON.

Tulloch Ave., Charlottetown, P. E. I.

A cheap whitewash paint for outdoors is made by using just enough water to moisten the slaked lime, and then adding kerosene oil to thin it to a consistency for easy application.



TIMELY TOPICS FOR THE AMATEUR—II.

APRIL! The very word April suggests life and activity to horticulturists generally. It is probably the busiest month of the year in the garden, especially in sowing and planting; and those who apply the most energy intelligently in their gardens during April will have the best chance of securing early and bountiful crops. On earnest and thorough work during this month, mainly depend the crop results of the season.

"April push, tends to Autumn plenty."

THE GREENHOUSE. — The cutting bed should have close attention, potting the cuttings into small pots as soon as sufficiently rooted. Replenish the bed with more cuttings of coleuses, alternantheras, achyranthes, etc., if more plants are required. Alternantheras root better now as a rule than if the cuttings are taken earlier.

Poinsettias should be cut back to the old wood, and when the plants are showing buds, shake out the plants and re-pot them in rather sandy soil. A size smaller pot will probably suit them for a short time, when they must be potted in richer soil, in well drained pots in which they are to flower. If young plants of these are required, after

cutting the plants back as just mentioned, instead of re-potting, allow the young shoots to grow until they are three or four inches long, cut them off close to the old wood, with a small piece of the old wood attached, put them in the cutting bed, and when rooted pot into small pots, re-pot into larger pots as required, these will make nice dwarf specimens of these showy decorative plants. poinsettias like plenty of heat and moisture when in a growing state.

Freesias may be dried off gradually, and treated as recommended in the March number of the Journal.

Dutch and Roman bulbs will be about over flowering now. Tulips, and the hardy varieties of narcissus, such as Von Sion, Trumpet Major, etc., that have been forced, may be planted out in the borders outside as soon as frost is out of the ground; these, if left undisturbed for a year or two, will furnish, for successive seasons, large quantities of bloom, and this is the best way to dispose of them, as they are of no use for forcing again the following season.

Roman hyacinths, and the more tender varieties of narcissus, such as Paper White, Grand Monarque, etc., may as well be



FIG. 1785. TEA ROSES. J. Gadby, Photo
Souvenir d'Wooton. Perle des Jardins. Bridesmaid.

thrown out altogether, as they give poor results under the best of treatment after having been forced. Tuberous begonias should be kept growing in a cool temperature.

Old plants of double flowering primulas (especially *Sinensis alba plena*) may be divided, and if young roots can be obtained on the divisions, as is often the case, they can be potted at once into $2\frac{1}{2}$ or 3 inch pots in light soil. Water thoroughly and shade the plants well until established; a temperature of 60° to 75° will suit them very well. Cuttings of these plants can be rooted readily in sand, if kept in a temperature as before stated, and kept well shaded and watered.

Rex begonias may be propagated very easily now from old leaves of these plants. There is still time for cuttings of winter flowering Begonias if started at once.

Re-pot young chrysanthemums, never allowing the pots at this stage to be overcrowded with roots.

Balsam, aster, zinnia and similar seeds may be sown.

Transplant early sown annuals, etc., as required, and gradually introduce them to a lower temperature, but not until they have become established after transplanting; this rule applies generally to almost all plants after transplanting.

Sow nasturtiums, ricinus (castor oil bean) as required, one seed of the latter in a 3 inch pot, and two or three seeds of nasturtium in the same sized pot; they will grow on in these until wanted for vases and beds, and can be easily hardened off before planting outside, sown in this way.

Cinerarias and herbaceous calceolarias should be pitched on the rubbish heap as soon as they are out of flower, as they are of no further use, only as a nursery and parade ground for green fly, of which, as a rule, there are plenty at this season of the year without providing nurseries for more.

Azaleas should be re-potted when out of bloom if they require it; use plenty of drainage, light soil packed firm, keep in a temperature of 60° to 75° for a few weeks, water at the roots liberally when required, and syringe daily.

Fancy and zonale pelargoniums should be well in flower by this time. The fancy varieties are very subject to attacks of green fly, and should have been well fumigated whilst growing, and as fumigation when in flower injures the bloom, fumigate lightly, if at all. Syringing these plants when in bloom is not desirable for the same reason.

The young fronds of ferns, especially the Maiden Hair varieties, also spireas, heliotrope, mignonette and coleus, amongst others, are very easily injured by heavy fumigations; lift the plants on to the floor, or cover with newspapers before fumigating.

Damp the floors frequently, syringe fuchsias, lantanas, etc., every day if the weather is suitable, this will help to keep down the red spider.

Shading the glass must be attended to ; light shading and renewed as required is better than heavy shading at this season. A good shading for a small greenhouse can be made by mixing whiting and skimmed milk together, sufficient of each to secure the proper consistency ; apply on a dry day with a whitewash brush ; this makes an effective shading, and does not injure the paint or putty as lime would do.

POINTED POINTS FOR APRIL.—Water growing plants thoroughly, and early in the day. Syringe on bright days early in the afternoon. Pay close attention to shading and ventilation. Close ventilators, and dampen floors early in the afternoon. Fumigate after sundown.

WINDOW PLANTS.—This is a good time to re-pot window plants that require it. Cactus should be potted, after flowering, into sandy soil ; use plenty of drainage, but don't over-pot. Many varieties of cactus require re-potting but seldom, especially if the drainage is perfect. Sow seeds of annuals and perennials required for borders. Watch closely for insect pests. Water thoroughly, and syringe two or three times a week on warm days. Dutch and other bulbs that are out of flower can be treated as recommended for greenhouse treatment. If you want three or four plants for the window that will permanently repay you, purchase *Sanseveria Zealandica*, *Ficus elastica*, *Aspidistra lurida*, *Echeveria metallica*, and *Farfugium grande* ; one of each will always make the window attractive placed amongst geraniums, fuchsias, etc. The *Sanseveria* requires plenty of drainage, and to be watered thoroughly, but very seldom, and only when dry—once a week, as a rule, is ample. The *Farfugium* likes plenty of water. The *Echeveria* requires very little water.

FLOWER GARDEN.—This is a busy time in this department, making the lawns, borders and surroundings spick and span.

All hardy roses should be pruned by this

time, winter covering removed and the beds forked over, and any fertilizer applied that is intended to be used. Plant roses and shrubs at once when received. Borders of herbaceous plants should be forked over after removing all winter covering.

Divide and transplant perennials, such as phlox, *campanula persicifolia alba*, coreopsis, gaillardias, dianthus, etc., all of these and similar varieties give better results if divided and transplanted every two or three years.

German iris and pæonies are better transplanted in the fall. Dutch bulbs will be making a show in the borders now, some of the heavier blooms will require small sticks to support them.

Dahlias, cannas, etc., may be started in pots in a frame or in the window, early bloom is secured in this way ; harden them off gradually before planting outside.

All plants, such as oleanders, hydrangeas,



FIG. 1786. CALLA LILIES.

J. Gaddy, Photo



FIG. 1787. DUTCH HYACINTH, "NORMA."

J. Gadby. Photo

etc., should be out of their winter quarters by now; plants of these that have not been re-potted recently, will give better results if treated to a few doses of liquid cow manure once or twice a week after growth has commenced; this is a safe and effective fertilizer for all such plants.

Sow and transplant annuals and biennials as required. Edge walks and roll lawns after rain.

Mignonette that has been grown in pots during the winter may be planted out in the border early in May; you will secure some spikes of bloom early by this method if you don't disturb the roots when transplanting.

Don't forget to shade hot bed sashes, and open and close them morning and afternoon on sunny days; one or two hours' neglect on sunny days; one or two hours' neglect on sunny days may mean a season's failure.

FRUIT GARDEN.—Planting and transplanting are the main features just now in the fruit garden.

Plant trees and bushes as soon as possible after receiving them; don't throw the bundle of trees down anywhere and leave the roots exposed to sun and air, and then blame the nurseryman for failures.

In planting give the roots plenty of room in all directions, pack the soil firmly, and don't plant too deep.

If you cannot plant the trees at once, heel them in deep, do not lay them down and throw a little loose soil over them, but dig a good deep hole and place the roots in and tramp the soil firmly around them.

A light mulch of long manure helps newly planted trees, but don't smother the stem of the tree; keep the mulch just clear of the stem. Remove mulch from strawberries, and cultivate until the flowering period, then replace the mulch, you will have cleaner and better fruit by this method. Treat the gooseberry patch in the same way. I find that a light mulch in summer helps the fruit, and keeps down mildew to a great extent.

Rhubarb beds like a heavy mulching of manure in the fall; remove a portion of the mulch now if too heavy.

Spraying apple, pear, and plum trees with the blue stone mixture before the buds swell, keeps down black spots or fungi. For making mixture see published formulas in the "Horticulturist."

VEGETABLE GARDEN.—Plant peas and beans as required for successive crops. A few rows of spinach may be sown for late use. I find the Victoria spinach stands the hot sun best, but the Viroflay is the best for general use. Transplant early celery into frames, or plant in the open ground. Sow main crop of celery seed for late planting. Sow cabbage and cauliflower outside for late crops.

Early cabbage and cauliflower raised in frames may be planted out.

The early express cabbage is a good first early, and comes in quickly, about the time asparagus is getting over.

Sow main crop of carrots, beets, salsify, lettuce and radishes, etc. There is still time for a few leeks, if sown at once and transplanted later. Plant Dutch sets, shallots, and garlic. Sow mustard and cress outside. Sow herbs. Parsley should be sown as early in spring as possible, it takes several weeks for the seed to germinate.

Sprinkle seed onions when about three inches high with dry soot, do this early in

the morning when there is a dew, or after a rain; repeat the application twice a week for three or four weeks; if the plants are thoroughly dusted you will not be troubled with onion maggots, as the fly that deposits its eggs in the young onions to produce the maggot will not go near the onion bed if treated in this way.

HORTUS.

Hamilton.

THE TUBEROSE—ITS CULTURE.

WHITE flowers are, have been, and always will be in demand. They may be used with propriety upon any occasion, being alike suitable for the marriage feast and the funeral ceremony; the hall of amusement

and the sick chamber. No lover of beautiful flowers is ever in higher spirits than when he or she is successful in bringing to perfect maturity some beautiful plant and is able to view with admiration the spikes or trusses of perfect, snow-white, sweetly-scented bloom. One of the finest white flowers is the tuberose.



FIG. 1788. THE TUBEROSE.

The tuberose is one of the most beautiful of our summer-flowering bulbs, and yet it is very seldom seen, even in the collections of our most ardent floriculturists. Such a state of affairs should not exist, for its tall spikes of flowers of purest whiteness and waxy texture, emitting, as they do,

their unrivalled fragrance, makes it a universal favorite. This beautiful flower was brought from Mexico a good many years ago. It was then introduced in a single form, and from that has sprung our beautiful double and other varieties in cultivation.

It is a belief among very many lovers of floriculture, that to bring this flower to perfection is a difficult task for the amateur, and no doubt this is the reason of its scarcity. Many think that it must have a place in a greenhouse and that the professional florist *only* can hope for success with it. This is not a fact, however, and tuberose are more easily grown than is generally supposed.

If grown out of doors in beds the bulb should be planted in a deep, *very rich*, sandy soil, and in a warm location. The bulbs should be planted four inches deep and a foot apart, and have thorough cultivation and an abundance of water. In this way they will do well. The *best* way, however, to grow tuberose out of doors is to grow them in boxes. The grower then has them more under control, can water them more thoroughly, and in many ways the better see after their requirements.

In the first place it is important that fine, large bulbs be procured if the greatest success is expected. In many instances small bulbs do not bloom at all and one's labor is

entirely lost. From these large bulbs take off all the small bulblets, as they will not increase the beauty of the plant in the least, for they will not produce spikes, and will only be taking strength from the soil that should be going to the large one. Now take neat boxes, paint them if you so desire, and have them about 12 x 20 inches, and about twelve inches deep. Such a box will hold six largest-sized bulbs. After boring several holes in the bottom, to allow perfect drainage, for the soil must not be allowed to become sour, fill it two-thirds full of a compost made up of two parts of well-rotted cow manure, one part of rich, sandy loam, and one part leaf mould, if procurable, all well incorporated. Set in the bulbs and then fill to top of box with same compost, packing firmly. Then give the contents of the box a thorough soaking.

This work should be done during the last week in May or the first week in June. There is no use of doing it earlier as the tuberose loves heat and will make no material advancement until the weather becomes very warm and settled. It is a custom with many to start this bulb in pots in the house. Such a course is not worthy of commendation, for, if anything, the growth will be checked instead of hastened.

After getting the bulbs boxed, select a warm situation, on the south side of a building, in which to place the boxes, where they may get all the sun and escape cold, north winds. Throughout the season give them an abundance of water every night, and your efforts will be rewarded with success. When once started they will grow rapidly. When blooming time comes, the boxes may be set in any place for exhibition. In the past I have been extremely successful in growing tuberose in this manner.

The Excelsior Pearl is the best variety to use. This is a dwarf double variety, and one single flower from a spike will scent a large room. The single variegated-leaved variety is quite popular also. Tuberose bulbs after blooming are useless, as most varieties bloom but once. The small bulbs that grow on the large one may be preserved and grown to blooming size. When in bloom do not allow the spikes to be rubbed together by the winds blowing, as they would soon be ruined.

There is no reason why every lover of flowers should not succeed with the tuberose.

“There is to me

A daintiness about these lovely flowers
That touches me like poetry.”

Fruitland, Ont.

JOHN B. PETTIT.





The Canadian Horticulturist

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

A School of Horticulture is being opened at the Rhode Island College, Kingston, R. I., with a course which is calculated for professional florists, gardeners, and fruit growers. F. W. Card, horticulturist, will conduct this department.

SAN JOSE SCALE.—Bulletin, December, 1897, of Tennessee, says this insect was introduced to California in 1876, and in 1887 into New Jersey. This is only about twelve years ago and now it has spread throughout almost the entire eastern part of North America. Strange that anyone can say that it was not worth worrying about. When fruit growers have to spray every inch of wood in their orchards in winter with crude petroleum or with whale oil soap, they will be sorry that more vigorous measures had not been kept in force.

TRANSPORTATION.—Our Committee on Transportation consisting of Messrs. W. H.

Bunting, E. D. Smith, and T. H. P. Carpenter, have been making every possible effort to secure better rates for fruit shippers from the Railway Companies. Last year certain important concessions were secured, and for the present season the following proposals have been presented to the Canadian Joint Traffic Association, which have been laid over for consideration at the Montreal meeting.

1. Restore last season's special rates, making them apply to mixed fruits in car lots to all destinations.
2. Make mixed fruits in five ton lots to one consignee, 3rd class.
3. Make mixed fruits in ton lots, to one consignee, 2nd class.
4. Place apples in barrels for shipment in Canada, in car lots, 8th class.
5. Grapes in barrels or large baskets, for wine purposes only, 5th class.
6. Encourage export of fruit to the British market.
7. Devise means whereby a better distribution of fruits by freight in Canada may be accomplished.
8. When refrigerator cars are iced on route, actual cost only to be charged.
9. Permit barrel apples in mixed cars, to carry the carload apple rate.

THE PASSING OF A LIFE MEMBER.

MR. CHARLES E. BROWN, President of the Bank of Yarmouth, dropped dead at his home on the afternoon of Feb. 17th. In him, a true friend of horticulture, a director of the Nova Scotia Fruit Growers' Association, and for years a life member of the Ontario Fruit Growers' Association, has passed away. When in Yarmouth last

The community was startled, for the second time within a few weeks, on Saturday afternoon with the announcement that another of our prominent citizens, Chas. E. Brown, Esq., had dropped dead at his home at Milton.

Mr. Brown had been about town, as usual, during the forenoon, and returned home and took dinner at noon. He then went to his store, near his residence, where he conversed for some time with Byron P. Ladd, Esq., and about 2.30 o'clock returned home to tell his daughter to go to Mrs. VonMetzke's funeral.

His daughter had gone, however, before he reached home. He went to the kitchen, and after presenting the servant girl with a birthday gift, turned the water tap to get a drink, when, without an instant's warning, he fell prostrate at the side of the servant, who thought he had tripped. As he made no movement nor reply to her call, she ran into the street and called Mr. Chipman Doty, who was passing by, to her assistance, and Mr. Brown was removed to a sofa. Dr. Williamson was at once summoned, who said Mr. Brown's death was instantaneous, and was caused from heart failure.

Mr. Brown was a son of the late Hon. Stayley Brown, M. L. C., and for some years Receiver General for Nova Scotia, and was one of our most prominent and highly esteemed citizens. He began his business career with his father, and shortly after his father's retirement from commercial life, built and opened a store on Vancouver street, which he carried on for a number of years. He retired, however, several years ago, and devoted his time to the study of agriculture, horticulture and improvement of stock. He was an extensive reader of the best authorities on these subjects, and was an authority on all matters connected with them wherever he was known. Throughout Nova Scotia his death will be long regretted by all who took an interest in such matters, and the Yarmouth County Agricultural Society, with which he has been prominently identified since its inception, has lost the most enthusiastic and devoted member. He also took a deep interest in the Milton Public Library, succeeding his honored father as one of its managers and active supporters.

Mr. Brown was the last of the original Board of Directors of the Bank of Yarmouth, which was established in 1865, and upon the death of its late president, Hon. L. E. Baker, succeeded that gentleman as its president.

Mr. Brown took a deep interest in the Mountain Cemetery, in school matters, and many other of our local private and public institutions, and his loss will be greatly felt for some time.

Mr. Brown received his early education at Yarmouth Academy, and subsequently went to Cambridge, Mass., where he graduated at Harvard University with honors. Last year Mr. Brown received and accepted an invitation to attend a reunion of all the members of the class who graduated with him. These were few in number, but the meeting was one of great interest to all present.

Mr. Brown was of a most unaffected and retiring disposition, of noble impulses and generous motives. He will be long missed from a large circle of sympathizing friends and neighbors.



FIG. 1789. THE LATE CHAS. BROWN.

October, the writer visited Mr. Brown at his home several times and was received with a royal welcome. He took great pleasure in showing us his very interesting garden, full of various fruits under test, most of which had been grafted or planted by his own hand, and formed his personal care in time of leisure from busier hours. He was a graduate of Harvard University, and well posted in all lines of literature, but seemed to have a special love for horticulture and pomology. We shall miss very much his valuable communications from the pages of our journal. The *Yarmouth Herald* says :

QUESTION DRAWER.

Green Corn for Export.

1140. SIR,—Do you know whether any attempt has ever been made to export to England either in cold storage or otherwise, green sweet corn in the ear? I am prompted to this enquiry by seeing the remarks of a writer in a recent number of the Illustrated London News, who wonders why it cannot be found for sale in Covent Garden and other markets. Now that a determined effort is being made to send our perishable products to England, it might be well to try whether corn would not be as acceptable as tomatoes have proved.

E. D. ARNAUD.

Annapolis, N.S.

No attempt to export green corn has ever been made, or even thought of before, so far as we know. Green corn heats and spoils so quickly under certain conditions that it would be a doubtful experiment for any individual to undertake.

We hope the Government will not discontinue its efforts in this direction until something more decided has been accomplished.

Budding and Grafting.

1141. SIR,—We have a lot of seedling stock, apples, plums, pears and cherries, which we budded last summer. In the event of the bud failing to catch, what is the best course to pursue?

1. Will such stock do to remain and be rebudded next summer? If so, is it best to cut back the top any in the spring?

2. Can such stock be grafted successfully?

3. What is the best time to cut scions for grafting in spring, also for grafting seedling stock before spring.

R. DICKENSON.

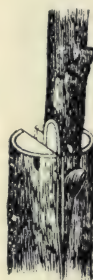
Strathroy.

In case of buds of last summer failing to catch, the stock may be rebudded next summer, providing it is not too large, nor too old so that the bark is tough. If a younger shoot is desirable for budding on near the ground, the tree may be cut off at the surface in early spring, and a young bud will push out and form a new and tender barked stock for budding. Budding is also sometimes performed high up on trees in nursery rows just where the top is wanted.

Budding is done in August when the bark

lifts easily. Grafting may be done in April, and if the young trees are large enough in diameter at the collar this method would be advisable for such stock of apple, pear or plum trees; with the cherry it is much more difficult to succeed by grafting. The method of grafting is well given in the following from *The Advocate*:

It does not matter much whether the scions are cut in the fall, in the winter, or just before they are wanted in the spring. In very cold latitudes it might possibly be better to cut in the fall or early winter and place in a dry, cool cellar under a light covering of sand. If cut in the spring they must be cut before the buds have begun to swell, as it is better if the stock is a little further advanced than the scion. Let the scions be cut to about four buds each, and always take them from good, healthy, vigorous shoots of last years growth. We take it that top grafting is intended, as root grafting is chiefly done in the nursery. The work of top grafting may commence in spring as soon as the sap is in motion, which is indicated by the buds on the tree beginning to swell, and it may continue till the leaves are half out. A fine, sharp



As a scion
ould fit the stock

FIG. 1790.

saw, a chisel or strong knife and small mallet are all the necessary tools. The branch should be carefully sawn off and a clean, smooth surface left. If the stub is small, it may be split with a heavy-bladed knife; for bigger branches a chisel answers the purpose. The chisel itself or a small wedge can be used to hold the cleft open till the scions are inserted. Two scions, one on either side, are usually inserted where the stub is larger than an inch through. The lower ends of the scions are cut wedged shape, the wedge being about an inch and a half long, and the outer edge of the wedge a little thicker than the inner. Fit the inner or growing bark of the scion carefully to the inner bark of the stock, withdraw the chisel and carefully cover all the exposed surface with grafting wax. The two especially important points are: first, to see that the scion fits tightly down its whole length; and second, to be sure that every cut or exposed surface is completely covered with the wax. A good wax is prepared from resin, 6 pounds; beeswax, 1 pound; linseed oil, 1 pint. Apply hot with a brush, about a quarter of an inch thick, or a little less, over all the joints.

Sometimes Nursery trees of 4 or 5 feet in height are whip or splice grafted three or four feet from the ground. This is especially desirable in case the scion is of a slender or drooping character.

Tar Paper Bandages.

1142. SIR,—Would common tar paper, such as is used for building purposes, wrapped around the trunks of fruit trees as a protection from sun scald, be injurious to the trees?

CHAS. YOUNG, Richard's Landing, Algoma.
No.

Vladimir Cherry.

1143. SIR,—Is it the habit of the Vladimir cherry to ripen its fruit unevenly, that is for ripe and green fruit to be on the tree at the same time?

C. Y., Richard's Landing.

We have not noticed this to any great extent in the Vladimir or Russian Morello cherries. This uneven ripening, however, is quite characteristic of the May Duke, a cherry of totally different type and habit.

A Ten Acre Fruit Farm.

1144. SIR,—I have a ten acre fruit garden, and I am at a loss to know how to care for it in the best possible manner. I shall be greatly obliged to you for some information regarding spraying and other matters.

M. A. HAMILTON, Toronto.

Our correspondent has not given us enough information regarding the varieties planted to enable us to reply very definitely. A ten acre fruit garden, properly planted and cared for, might easily yield as good an income as a hundred acre farm managed in the ordinary slipshod manner; but to get the best results the best methods must be followed. Spraying is done for three objects: (1) to kill injurious insects; (2) to destroy fungous growth, such as apple scab or grape mildew; (3) indirectly to improve the vigor of the tree. For the insects Paris green is the specific for the leaf eaters, and whale oil soap, potash or crude petroleum for sucking insects. For fungi, Bordeaux mixture is the specific. The times of application are not so important as the method

and thoroughness. The idea is to keep the whole tree or plant completely covered with the mixture during the whole season, so that no fungus or mildew germs falling upon the surface can possibly germinate. To accomplish this it is usual to give the first application before the blossoms open, and to give fresh applications at intervals of two or three weeks during the season.

We shall be pleased to answer any specific inquiries made by our correspondents.

To Kill Dandelions on Lawn.

Cut off top and put on one drop of sulphuric acid on root; coal oil is said to do, but enough must be put on to sink down around root.

R. T. FRAZER, Vernon, B.C.

Hardiness of Apples.

1145. Are Sutton Beauty, York Imperial, Grime's Golden and Jonathan apples as hardy as Northern Spy?

So far as we know these varieties are all about equal in hardiness. None of them have been very widely grown in Ontario, except Grime's Golden, which was once distributed by our association.

Grafting the Grape Vine.

SIR,—In the question drawer of January number of the Canadian Horticulturist is an answer to Geo. Thomson, Wolfville, N.S., about how best to graft a grape vine. I would like to give my experience in doing the work of grafting the grape vine. The better way to graft the vine would be, as soon as the weather would permit in the spring or the frost is partly out of the ground, dig the ground away from the vine down to the root and cut the vine two inches above the root square off; then take a mitre saw and cut a slot two inches deep instead of splitting the same with knife or chisel; open the slot with a wedge and set the scion in place and withdraw the wedge; remem-

ber to leave two buds on the scion. When the grafting is complete draw the earth nicely around the vine, leaving one bud uncovered, which will help to keep the scion moist till it will start to grow.

J. W. W., Jordan Station.

Yucca.

1146. SIR,—Is the *Yucca (filamentosa)* suitable for this climate? Is it planted in tubs or in the ground? Will it live in the ground all winter? Give what instructions you can for planting and culture of this plant of which I read in a former number of *Horticulturist*.

SUBSCRIBER, Orangeville.

Yucca filamentosa is considered to be quite hardy in almost any locality in Southern Ontario, and is suitable for planting outside under conditions that are favorable to plant culture generally. I have known fine specimens of these plants to have been killed out in very unfavorable winters, when there has been no snow to protect them; but this has occurred on badly drained clay soils, a condition that suits but very few plants, however hardy they may be.

A well drained, light loamy soil, is most suitable for these plants, although they oftentimes grow and flourish for years under less favorable conditions. A light covering of dry leaves and straw, or long manure, is advisable, but not absolutely necessary in

favorable seasons for winter protection; care must be taken not to cover the plants too heavily.

In spring, say early in April, uncover the plants gradually, removing all the wet heavy covering first, and replace the dry part of the covering again, so as not to fully expose the plant at once to the hot sun in day time, or frost at night; the balance of the covering can be removed as the weather permits.

The *Yucca filamentosa* can also be grown in large pots or tubs, and stood outside in the summer, removing them before severe frosts to the house or a dry cool cellar, that has a temperature just above freezing point. These plants require very little water during winter, only sufficient to keep the soil barely moist.

The *Yucca filamentosa* is a native of the southern part of N. America, and is a very desirable decorative plant at all seasons; but when in bloom, its showy flower spikes often three or four feet in height, makes it a conspicuous and pleasing object on the lawn or in the garden. It requires no special culture, other than those mentioned, except perhaps a few applications of liquid manure in the summer if grown in a pot or tub.

Hamilton.

WM. HUNT.

Open Letters.

The Care and Planting of Spruces.

SIR,—Why is it that we see so many lawns and gardens with such a number of dead spruce trees? Is it the cold winter? Surely not. Does it not seem to suggest bad planting, or the roots too long exposed to wind and sun before planting? The writer has planted many hundred spruces, and in all cases has had the greatest success. Several things seem essential, but first and foremost, after selecting the place for planting, either a hedge or single spruce, if heavy soil, prepare some well pulverized earth and dig a large hole, not necessarily deep, but broad; place the tree in it, having removed all mangled and bruised roots with a sharp knife, and sift among the roots the prepared soil, giving the tree a gentle shake to settle the earth. If the soil is apt to bake it is advisable not to tread the earth too firmly round the roots, as it sometimes hardens and recedes from the sides of the hole as the hot weather advances.

Fill up the hole level with the surrounding ground and mulch with a thick layer of straw, hay, or better still, when procurable, with lawn clippings; this prevents evaporation of the moisture in the summer months.

The fall seems the most favorable season for setting evergreens, as they have the advantage of being thoroughly established before the summer. It is much better, where the soil is sandy loam, to obtain trees from a nursery of similar soil. If one is going to plant a considerable number of spruce, I would advise the planter to drive to the nursery with a wagon, having filled the box with wet straw, and take the trees dug straight up from the nursery, placing them in the wagon and packing the damp straw round each. Then the roots do not suffer from being both wind and sun dried. Each root is covered with a resinous substance which, if once dried, prevents it from taking up both moisture and nourishment for the growth

and life of the tree. To those living far from a nursery, it would be the better plan to buy young seedlings from any nurseryman and plant them out in nursery rows, when having been hoed and cultivated for two or three years, they would be ready to be planted more carefully, being handier when wanted, always bearing in mind that two things are most important to success: (1) Never expose for a moment the roots to either the wind or sun; (2) Have as much earth adhere to the roots as possible when digging them up, not shaking it all off, as is too often done. If these remarks are carefully carried out there is no reason why spruces should not live and grow when transplanted as easily as any other tree.

Winona.

JUNIOR.

Fraudulent Packing.

SIR,—I have seen several articles in various newspapers, as well as in our magazine, on "Fraudulent Packing." In watching the packers in times past I have thought and said if the fruit buyers would give us a better price and take the best fruit at that price, also pay us more for good varieties than common ones, they might take the second quality at a less price, and it would be better for all concerned. And then our fruit would have a good name in the foreign markets, and there would be no difficulty in getting sales at a good figure.

But, no; they not only pack fraudulently, but give them other names frequently. Some two years ago our Huron "Apple King," so called, got our apples. We had a few barrels of Hubbardson Nonsuch: they were rather small, but sound; the packer marked them XX. When we took them to the station D * * C * * asked why those barrels were marked XX, and said "I will see them." He opened a barrel, "Oh," he said "they are all right." He then told the man that was stenciling them, "*Mark those barrels Ontario.*" I thought at once it was a dishonest trick; by so doing deceiving the buyer. The same party, by his packer, acted dishonestly by us; promised to pay us two cents each for fetching out the barrels, and asked us to pack about a dozen barrels and would pay us for it, but we got nothing for either.

I am afraid some of our buyers will get nipped this year, and really I can't pity some of them.

Goderich.

WALTER HICK.

San Jose Scale.

SIR,—I read with a great deal of interest the letter of A. W. Graham, nurseryman, of St. Thomas, on this subject. I am one of those who suffer the most inconvenience from the existing laws, being a small local nurseryman, my customers coming direct to the nursery more or less every day during the planting season. But, while I can sympathise with friend Graham in the inconveniences he mentions, I have come to a very different conclusion from what he has. Instead of trying to induce the Government to relax their efforts, I think that all nurserymen, as well as fruit growers, should back up the Government in their laudable efforts to exterminate the dreaded pest, and cheerfully make the best of the inconven-

ience attending it. It is an old and true motto, "Of two evils choose the least." In principle, I am an out and out free trader, but, in this case, I think it was a commendable thing to prohibit the importation of nursery stock from the States. If one importation of infested nursery stock, through the carelessness or connivance of the officials, were permitted to come into Canada and be spread broadcast over the country, it would soon nullify all the efforts which the Agricultural Department has been making to exterminate the pest.

To the point that there are not fruit trees enough in the country at the present time to supply the demand, that will in time right itself. There is abundance of capital, business enterprise and horticultural skill to produce all the nursery stock which the country requires, if there is a reasonable prospect of disposing of the same at sufficiently remunerative prices.

Wellburn, Ont.

JOHN M. McAINSH.

Our Journal.

SIR,—I take pleasure in letting you know that I have received the first number of the Canadian Horticulturist for 1900. This being my twenty-third anniversary as a member of the Canadian Horticulturist Society and recipient of its valuable journal. I must tell you I have been pleased on many of these anniversary occasions with agreeable and pleasant improvements, especially of late years. I thought last year's dress, style and contents could not be improved on much more; but I have been agreeably corrected in my opinion, for on seeing and looking over the Horticulturist for January it gave me that animated pleasure that decided beauty, improvement and perfection can only give, for it has taken on several degrees of marked improvements, and I feel that its readers have something to be proud of in knowing that we have such a splendid paper to help to build up horticultural taste in our beautiful land. I must tell you we have a good strong Horticultural Society in Goderich, as there is quite a number of enthusiastic fruit and vegetable growers here, and our horticultural display at the fall show is in many exhibits superior to any thing seen in other parts of the country. It has been your wish that all members should state their opinion on the benefit of distributing plants and trees. I must tell you I have several standing monuments of lasting pleasure from the past distribution of trees and plants, viz.: the Ontario apple tree I received over twenty years ago could not be taken from the present owner for less than thirty dollars; my Miles Grape I could not part with for any reasonable price as it is one of the best of my forty-four varieties that I have fruiting; then my Idaho Pear, Dempsey Pear and Wickson Plum, all beautiful promising trees that would not have come into my possession if I had not got them in this way. It is well known that people getting trees this way are sure to take better care of them, so I like the system. Our Horticultural Society will have a series of discussions this winter and I shall send you some of the papers read before the Society. I will close by wishing you and all the readers of the Horticulturist a happy and prosperous year.

Goderich.

W. WARNOCK.

OUR AFFILIATED SOCIETIES.

LINDSAY.—At the monthly meeting of this Society on the 13th of February a very interesting paper was read by Mr. W. M. Robson on the work of Horticultural Societies and especially that at Lindsay. He showed the double advantages of affiliation with the Ontario Society and figured out that in return for each member's subscription of \$1.00 he received in return at least \$3.00 in the value of (1) The Monthly Journal, (2) The Report, (3) The Plants (4) The privileges of the meetings.

The Evening Post gives two columns to the report of the lecturer sent by the Ontario Society, Mr. Martin Burrell, of St. Catharines, in the Council Chamber, Lindsay, March 8th. The hall was crowded with ladies and gentlemen to hear his address on Birds and Horticulture. The evening was opened by some gramophone selections, after which Mr. Robson introduced the lecturer, who united the instructor and the entertainer in a most remarkable manner.

HAMILTON.—The schedule of premiums (not money) offered and list of exhibits asked for the flower show, is out for the month of June. There are three classes of exhibits: I.—Amateur class. II.—Amateurs with Greenhouses. III.—Commercial Gardeners and Florists. At the bottom the following note is added: "The plants in the Amateur classes will be sent for and returned at the close of the exhibition." The following is the sub-division Class I:

I. Amateur Class—Roses: The best six Roses, distinct. Three Roses, distinct. One vase of twelve blooms, any varieties. One vase of six blooms, any varieties.

Peonies—Six varieties, distinct. Three varieties, distinct. Largest and best collection.

Herbaceous Plants—Perennials (Cut bloom)—Best collection of Perennials, not less than six varieties, named—two spikes of each. Best three varieties. Best vase of cut bloom—Perennials.

Plants in Pots (Grown in Dwelling House,—1 Palm, 2 Begonias, 3 Geraniums, 1 Amaryllis, 1 Dracena, 2 Fuchsias, 1 Geranium, 2 Coleus, 1 Fern, 1 Fuchsia, 1 Cactus. The best House-plant of any variety.

TORONTO JUNCTION.—On the evening of Jan. 23 the members of the Toronto Junction Horticultural Society met and listened to a very interesting address upon the "Care of House Plants," by Mr. A. Gilchrist. The very difficult problem of watering was fully gone into. The effect of atmosphere in the house and outside was dealt with in a masterly manner, and indicated that with an east wind, when the atmosphere was damp, water should be used sparingly while with a west wind and dry atmosphere more water might be used. All, however, requires judgment. In summer plants dry from the top. In the house they are likely to dry from the bottom. By empty flower pots soaked and dry, Mr. Gilchrist illus-

trated, ringing a sound from each, the condition of the roots within. Re-potting plants, potting palms, the soils to be used, feeding plants and dealing with insect pests, were matters Mr. Gilchrist dealt with, and his exposure of large growth by means of nitrate of soda solution was a deterrent to nurserymen to produce immense plants with small flowers. To produce flowers, the bone dust had been found to be very beneficial, and summer heat, to purify soils, he thought even better than the winter frost.

LONDON.—The first public meeting of the London Horticultural Society was held in the Auditorium last night. About one hundred and fifty horticultural enthusiasts were present. The platform was artistically decorated, being hung with flags and bunting, and set with graceful palms and other plants. The chair was taken at 8:30 by Mr. John Balkwill, the president, and with him on the platform were Rev. Dr. Bethune, Very Rev. Dean Innes, and Mr. T. H. Race, of the Mitchell Recorder. The proceedings opened with the singing of "Soldiers of the Queen," by Miss Winnie Hooper and Mr. A. G. Stevens, with accompaniment by Miss Smallman.

In his opening remarks, President Balkwill referred to the recent organization of the society and the encouraging outlook for its future success, and enumerated the advantages which membership in the society gives. He regretted that there were not more ladies on the membership roll.

On rising to deliver his address on "The Moral Influence of Floriculture in the Home," Mr. Race humorously impressed upon the audience the fact that his own somewhat attenuated build was not to be attributed to the fact that he was a horticultural enthusiast, but rather to the fact that he was an editor of a country weekly, a position which entailed considerable worry. He referred to London as being a favored city in its own natural advantages, and the fact that its surrounding agricultural district was one unsurpassed on the continent, and perhaps in the world. The horticultural exhibit at the Western Fair is one unequaled by any other exhibition. Mr. Race's address was received with close attention, and tended to inspire the Society with a high conception of the possibilities which were within the reach of the members.

Miss Hooper sang "A May Morning," followed by Mr. A. G. Stevens in a stirring patriotic ballad. Mrs. A. A. Campbell gave three enjoyable recitations.

Rev. Dr. Bethune's address concluded the evening's interesting programme. He spoke instructively on the many insects which are such a source of annoyance and loss to the horticulturists, and showed how horticultural societies had done good work in providing remedies for their extermination, either by the use of chemicals or by the propagation and introduction of other insects, which were not injurious to plant life, but preyed upon the insects which were.

The meeting closed with the "National Anthem."—The Advertiser.

GRIMSEY.—Monthly meetings of the Society have been held during the winter, and are likely to be a great source of strength to the Society. At the first meeting Mr. Wm. Hunt, of Hamilton, gave a most instructive talk on "House Plants," assisted by Mr. J. M. McCulloch; at the second meeting Mr. M. Burrell, of St. Catharines, gave a most interesting and popular address on "Some Eminent Bugs"; and at the third Mr. J. M. McCulloch, of Hamilton, gave a most instructive address on "Palms and Decorative Plants," illustrating it with lantern slides with the assistance of Mr. Hunt.

The next meeting will be a house meeting, and each member is to bring some note either from experience or reading on "Decoration Plants for the Table." Each member is also invited to bring a specimen plant for comparison. Toward the end of April the annual distribution will take place. Each member will receive a package containing a Palm (*Kentia balmoreana*), a plant of *Ampelopsis Veitchii*, three Lily Bulbs, a tree of Japan Golden Prolific Plum, and a climbing shrub, *Wistaria*. The last two are from the Ontario Association. We have found it so much more convenient to give each person the same collection that we shall not attempt to give a choice in future.

OUR BOOK TABLE.

CYCLOPEDIA OF AMERICAN HORTICULTURE comprising suggestions for cultivation of horticultural plants, descriptions of the species of fruits, vegetables, flowers and ornamental plants sold in the United States and Canada, together with geographical and biographical sketches; by L. H. Bailey, Professor of Horticulture in Cornell University, assisted by Wm. Miller, associate editor, and many expert cultivators and botanists; illustrated with 2000 original engravings, in four volumes. Published by the McMillan Co., New York, 1900. Price \$5.00 per volume. Four volumes.

This magnificent work, of which the first volume of 500 pages lies before us, promises to be to the gardeners and fruit growers of North America all that the invaluable Dictionary of Gardening, by Nicholson, has been to English gardeners and students of horticulture. The author, Prof. L. H. Bailey, is already known far and wide as *the horticulturist* of North America, and to his learning and skill in making his specialty popular, and in gathering from a thousand sources the the most valuable data and presenting them to us in a most charming manner, his many books on "Garden Craft" and "Rural Science" nobly testify. His works are not only voluminous, but they are of scientific accuracy, for the writer is a master of botanical science, as well as of practical fruit and flower growing. This feature shows itself clearly in his classification of species of plants, which is based on their botanical characters.

One all-important feature of this work is its complete adaptation to the conditions of our country. With Nicolson's admirable work we always found the the dates of bloom and fruit and time of transplanting based on English conditions and quite wrong for Canada; and again, much more attention given to greenhouse garden-

ing than is needed in our country in the present era of horticultural development. These are points which make Prof. Bailey's works far more desirable among our Canadian horticulturists than Nicolson's, however valuable for other reasons it may be.

SIMMER'S ANNUAL SEED CATALOGUE, 1900, illustrated, 90 pages. Chromo cover of Pansies and Petunias. Floral collections of Giant varieties. Address J. A. Simmer, Toronto.

GRASSES AND FOREIGN PLANTS, Vol. XI, of Agricultural Experimental Station, Knoxville, Tenn., 1898. A most interesting and valuable work on grasses, with illustrations and excellent descriptions.

ELLWANGER'S & BARRY'S New Catalogue for 1900, Mount Hope Nurseries, Rochester, N.Y. This new edition is really an art production, full of new and original photogravures, on beautiful paper. The descriptions too are most valuable.

CANNAS AND GLADIOLI.—Price List for 1900. J. A. Campbell, Simcoe, Ont.

JAMES J. W. GREGORY & SON, Marblehead, Mass. 1900 Catalogue of Home Grown Seeds, free on application.

SIXTH ANNUAL CATALOGUE and Treatise on Diseases affecting fruit trees, vegetables, etc., and their remedies.

The Spramator people deserve great credit for this business enterprise, and for the very fine illustrated catalogue which they issue free to all applicants. It is an excellent guide to the work of spraying.

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CHAS. H. SNOW,
Box 3, Cummings' Bridge, Ontario.

THE IRON-CLAD BALDWIN.—Mrs. Dr. Hoskins writes that the Doctor's Iron-clad Baldwin, not yet introduced, is offered for sale, the whole stock, 1000 trees, for \$250. It is of great value for cold sections, and some Canadian nurseryman might like to know of the offer.

Successful Country Homes

Every one is interested in a pretty home, and the Ladies' Home Journal is going to picture a number of the best houses—artistically and architecturally—in this country. Each will be shown in sufficient detail to make it serve as a model for any one wishing to build a home—either like the original or with such modifications as existing circumstances may necessitate. Only houses that really stand for the best results in architecture will enter into the series, which will start in the April Journal.



JAMES BELL, M.A., LL.D.
PROFESSOR
H. L. HUNT, B.S.A.
PROFESSOR

HORTICULTURAL DEPARTMENT,
Ontario Agricultural College,

The Spramotor Co.,

QUELPH, Canada, AUG. 24th, 1899.

London, Ont.

Dear Sirs,-

I can with pleasure say a good word in behalf of your Spramotor outfits. I have noted with interest the improvements made in them from time to time, and I think you deserve credit for the enterprise you have shown in making them strictly first class.

We are using both your large and small sized outfits, and they are giving excellent satisfaction. Your latest improvements, the Spramotor Jr.'s No. 1 & 2, are all that could be desired, and I can heartily recommend them to all who have spraying to do.

Yours truly,

H. L. Hunt

We aim to offer the trade the most highly developed spraying machines that present knowledge makes possible to produce.

And as our trade is large enough we are enabled to construct and improve them without stint, and deliver thoroughly well built machines.

For the severe requirements of to-day we are sure the farmers need the best instruments brains and money can put in their hands.

After repeated tests, the latest development of the Spramotor Co. is being used by the Department of Agriculture to spray with crude petroleum and kerosene, and the various kinds of soaps.

"I find your annual catalogue a veritable treatise on treatment of insect and fungous diseases. The remedies have been well selected from the best sources and are thoroughly reliable.

"Yours, &c.,

"W. LOCHEAD, B. A. M. S."

The above Copyrighted Treatise of 82 pages will be sent free to all who ask for it.

AGENTS WANTED.

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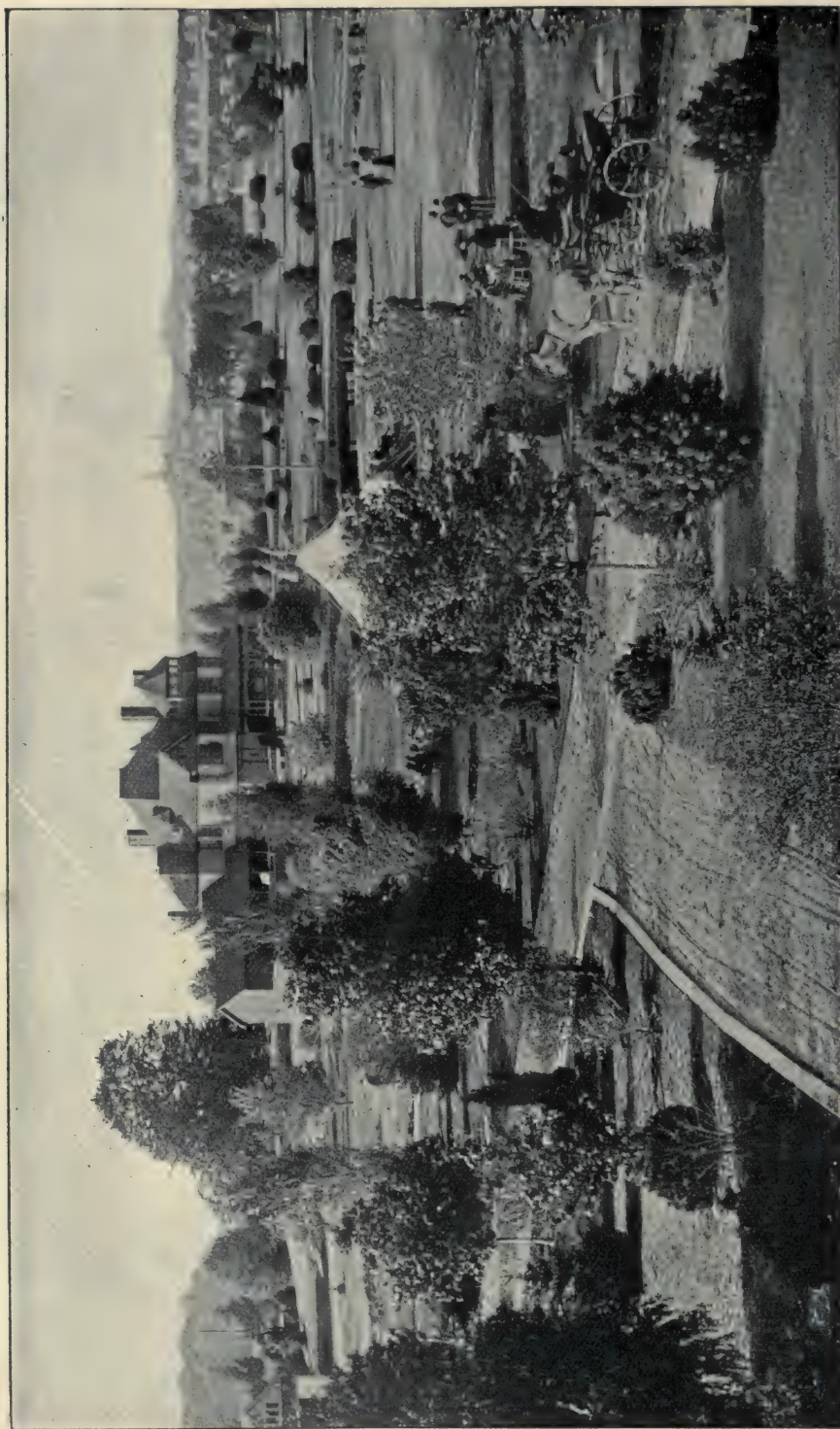


FIG. 1790. View of part of Shrubbery on the Central Experimental Farm at Ottawa, Ontario.

THE CANADIAN HORTICULTURIST

Vol 23

1900

No 5

* * MAY * *

CENTRAL EXPERIMENTAL FARM NOTES—VII.

THE snow has been gradually disappearing since the middle of March, but there has been little warm weather since that time and very little rain. Sleighing was good in the country up to the end of March. While it is too early yet to write from experience, the probability is that this spring will not be any earlier than last year. At this date, the 14th April, snow may still be seen in places which do not get much sunshine; the frost is not yet out of the ground, and the weather remains cool. What is now needed is a warm rain, followed by drying winds.

The benefits of mulching fruits and flowers in autumn are already apparent. Strawberries in the vicinity of Ottawa which were not covered last autumn will nearly all be killed out. The strawberries at the Experimental Farm which were given a light dressing of straw do not seem to have suffered much, but as the covering has not yet been removed some varieties may have been injured. The lawn grass which was mulched with manure has a greener appearance than where left uncovered and the grass in a few

exposed places may be killed outright. It is very probable that bulbs such as hyacinths, tulips, and narcissus where not protected have suffered. At the Experimental Farm we are confident that they will be all right. The tulips already are showing well, and snowdrops are coming into flower. The great advantage of a mulch which will lie loosely over herbaceous plants was very apparent this year, as where evergreen boughs were used they came out much fresher. This is especially applicable to pansies, as, if a mulch lies too closely over them, they are liable to suffer almost as much as if no mulch was given.

During the past winter extensive experiments have been carried on with lime mixtures of different strengths on apple trees infested with oyster shell bark louse. The trees were thoroughly sprayed with the mixtures and were made quite white from top to bottom. The object of these experiments was to find out if the oyster shell bark lice could be removed thoroughly and economically from the trees by the use of lime, as there was no evidence to show from experi-

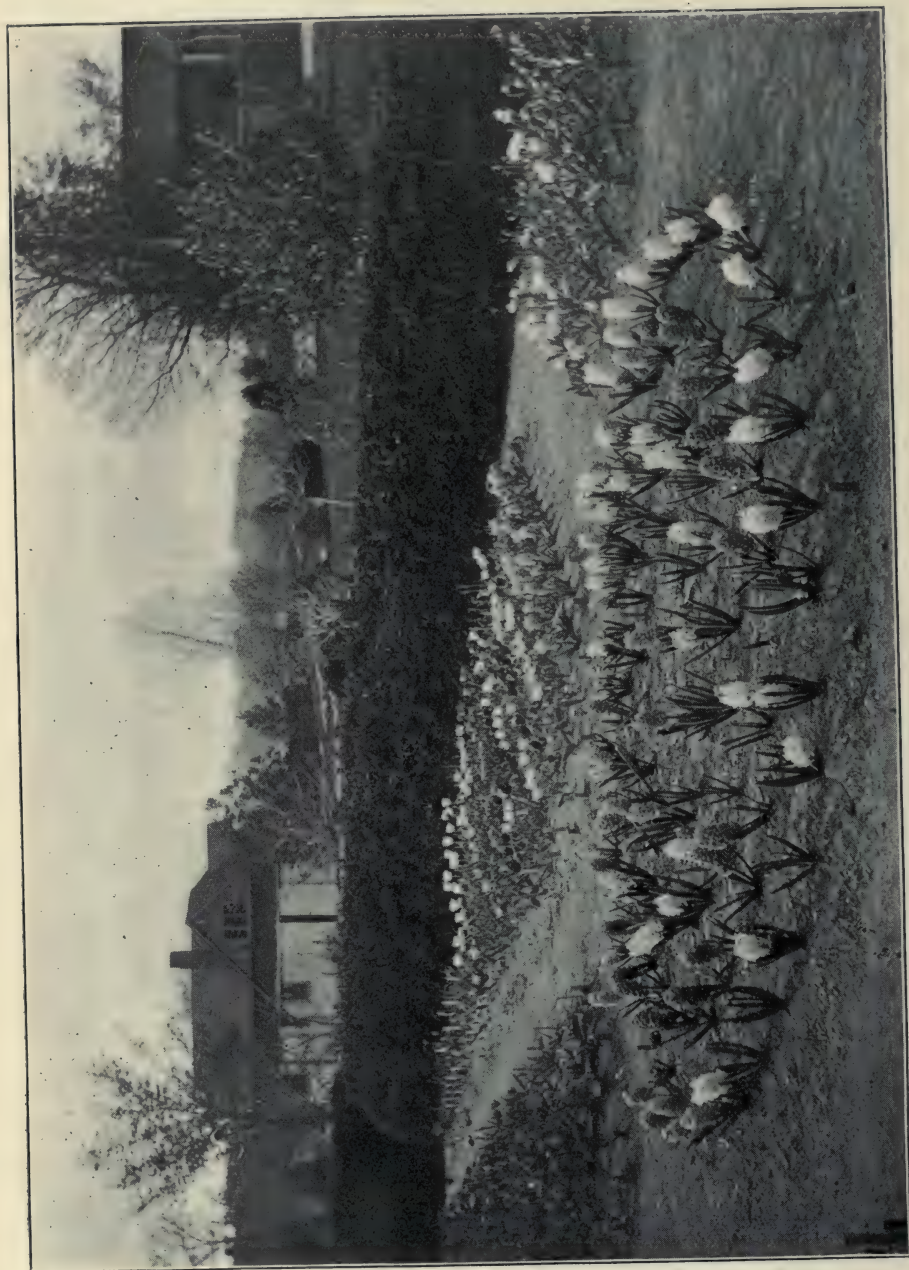


FIG. 1791. FLOWERS IN SHELTER PLACE AT CENTRAL EXPERIMENTAL FARM.

ments conducted a year ago that it would do this. As the lime appears to loosen the scales and the rain wash them off, the effect of the former will not be fully apparent until later in the season.

The work of top grafting the less hardy apples on hardy stocks which was begun last year will be continued next week. The stocks used are Haas, McMahon White, Gideon and Hibernial, as these are very hardy trees, having trunks which do not sunscald, as a rule. It is expected that good will come of this work, as, if the terminal growth does not kill back, those varieties which are subject to sunscald should succeed when grown in this way, provided the stocks are suitable. Northern Spy, which does not succeed when grown in the ordinary way, has been fruiting for several years now, top grafted on Wealthy and Duchess, but as these stocks are too slow growing for the Spy, the trees are becoming top heavy. We are also top grafting the best pears on the Russian varieties to see what the effect will be.

By the time this number of the Horticulturist appears some of the best early perennials will be in bloom or just coming into bloom. One of the earliest and finest of these is the Spreading Pasque Flower (*Anemone patens*), with its large, purple bell-shaped flowers. It begins to bloom at Ottawa in the fourth week of April, when its lovely flowers are very desirable for cutting, there being few other perennials in bloom at that time. Following this, during the first week of May, is the Ox-eye (*Adonis vernalis*), a little plant from six to nine inches in height, with large, lemon-yellow flowers and finely cut foliage. It is a very pretty and dainty plant, and while not very good for cutting, it is desirable on account of its earliness.

The Doronicums, which begin to bloom during the second and third weeks of May, are also fine. The flowers are large and yellow, and the plants from one to two feet in height. *Doronicum Caucasicum* and *Doronicum plantagineum excelsium* are two of the best; the former is earlier than the latter, but not quite so striking. The Epimediums or Barrenworts are little Japanese plants which begin to bloom during the second week of May, and which, for gracefulness and delicacy of color, are difficult to excel among early flowering plants. They are excellent for cutting, the flowers having long stems and the foliage, which is of a shade of green tinged with bronze, going well with them.

Among early flowering perennials, the old fashioned bleeding heart should not be omitted, as the plant is covered with showy flowers for a long time. Other good flowering perennials which bloom in May are the columbines, of which the best are *Aquilegia oxysepala*, *Aquilegia glandulosa*, *Aquilegia Stuarti*, *Aquilegia coerulea*, and *Aquilegia Canadensis*. These are all very beautiful. Then there are the white alyssum, *Arabis alpina*; prophet flower, *Arnebia echinoides*; lily of the valley, *Convallaria majalis*; evergreen candytuft, *Iberis sempervirens*; ice-land poppy, *Papaver nudicaule*; lovely phlox, *Phlox amoena*; creeping phlox, *Phlox reptans*; moss pink, *Phlox subulata*; creeping Jacob's ladder, *Polemonium reptans*; and the globe flowers, which are among the best of the early perennials. Of these *Trollius Europaeus*, *Trollius Ledebourii*, and *Trollius giganteus* are some of the best.

W. T. MACOUN,
Horticulturist.

Central Experimental Farm,
Ottawa.

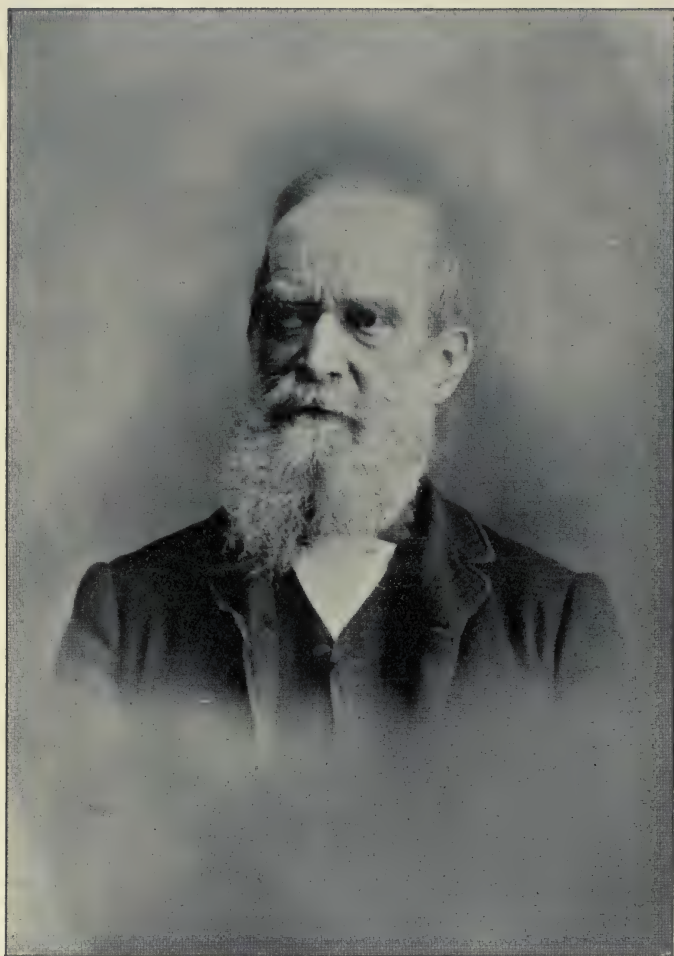


FIG. 1792. THOMAS BEALL, LINDSAY.

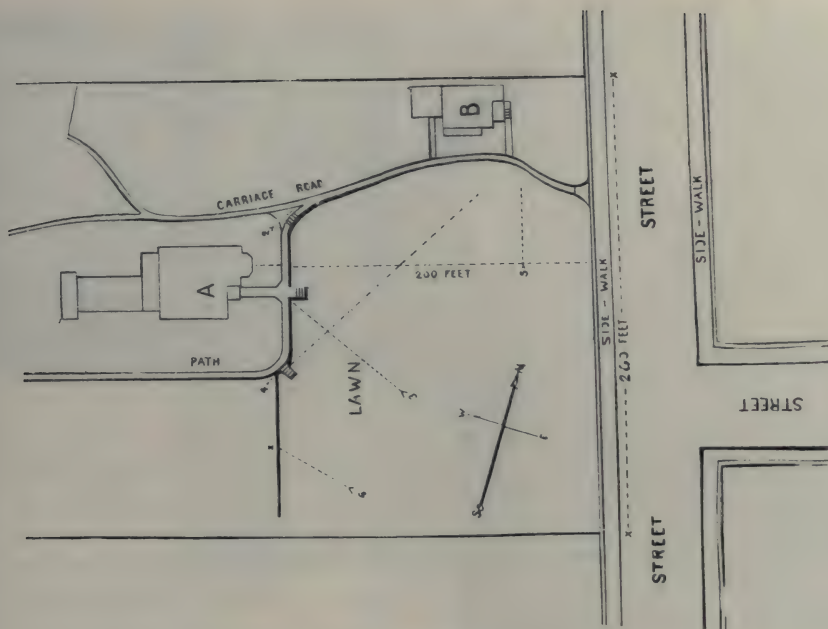


FIG. 1793. PLAN OF MR. BEALL'S GROUNDS.

DIRECTOR THOMAS BEALL AND HIS HOME.

THE series of excellent articles by W. H. Manning, of Boston, on Landscape Gardening has stirred up considerable interest among our readers on this important subject. It was with much pleasure that we recently opened a mail packet and found it to contain a series of views of the grounds surrounding the home of Mr. Thos. Beall, of Lindsay, our well known representative from the County of Victoria accompanied by the following note :

"The photographs presented herewith may not, as pictures, be specially admirable, but in so far as they show effects which may be produced in treating a nearly level, uninteresting piece of land, which had been stripped of every tree and bush, and by following as nearly as possible the rules for laying out grounds as given by the best authorities on such matters, it is hoped they may be of service to some of your readers who have in view the planning of a home.

"The ground plan given is of the eastern position of the plot (the whole being five acres in extent). The house shown at A is placed over two hundred feet back from the street. (The house "B" built recently was not completed when the

place was laid out), and the entrance gate is about sixty feet from the north east corner of the property.

"The pictures Nos. 1, 2, 3, 4, 5 and 6 respectively are views taken from the positions marked by corresponding figures on the plan. No. 6, however, is merely to give some faint idea of the appearance of the Tartarian Honeysuckle in bloom at maturity when not spoiled by injudicious pruning. This shrub now measures nineteen feet in diameter and is fourteen feet high in the centre.

"The writer laid out these grounds and planted, or superintended the planting, of every tree and shrub shown in these photographs."

In volume XV of this journal, page 195, we give a sketch of the life of Mr. Beall, who has now been on our directorate for twenty-two years.

Mr. Beall was born in Cornwall, England, in 1828, and came to Canada in 1840, settling at Lindsay in 1860. Recently he has been appointed organizing director of Affiliated Horticultural Societies, a work in which he has rendered excellent service both to the societies concerned and to our Association.

Early in life Mr. Beall became somewhat of an expert in perspective drawing. This led to mechanical and architectural drawing, *i. e.*, that branch of architecture known as Rural Architecture. A careful and systematic study of this branch of the subject led to a critical study of rural homes and its surroundings, which of course included what is



FIG. 1794. VIEW AT 5.

known as Landscape Gardening. Fortunately about this time he had the opportunity of consulting some of the publications of that kind of landscape gardeners, the late Humphrey Repton and also other excellent English authorities, and a little later the work of the late A. J. Downing, of Newburg, N. Y., who, he was pleased to find,



FIG. 1796. VIEW AT 4.

corroborated his previously formed opinion of the trustworthiness of the principles of this art as laid down by the English authorities, and especially by Repton in his rules for placing the house, the entrance to the grounds and the approach; for therein lies the key to success in this art. The laying out of the grounds after these points are settled is comparatively easy work. But



FIG. 1797. VIEW AT 1.



FIG. 1795. VIEW AT 2.

then a thorough knowledge of the character, forms, habits, color of foliage, etc., etc., of all the trees and shrubs required, together with the knowledge of the effects of flower beds, etc., in certain situations, is absolutely indispensable.

There is at Lindsay, on the right bank of the river just above the town, a very beautiful

cemetery. It is admired by every visitor, and is noted far and wide for its trees and shrubs, many of which are of rare beauty, and are in great variety. The owners, a joint stock company, got an expert from Rochester, N. Y., to lay it out, and it was fairly well done. The company also gave this man an order for all the trees, shrubs, etc., required (a place for each one was marked on the plan), all of which was duly received and the bill



FIG. 1798. HOME OF MR. THOS. BEALL. VIEW AT 3.



FIG. 1799. VIEW AT 6.

for which was (about twenty-five years ago) \$127.00. In two years there was not a dozen living specimens in the cemetery. It was a complete failure principally because the stock furnished was unsuitable for the situation. At the request of the company Mr. Beall then undertook the selection and purchase of the stock required and also the supervision of the planting and the subsequent care of the same for one year. The cost of the work was less than one half of the first transaction, and the result is as stated in the two first sentences of this paragraph.

AMONG apples and pears certain sorts assume naturally very different forms of growth. Some grow close and compact, some horizontally and crooked, while others are slender and thin in their growth, and are indisposed to put forth lateral shoots. Winter Nelis Pear is of the latter class. In such a case it will be necessary to prune closer than in the others at the winter pruning. If the

thinning of the shoot is attended to in the summer, and gross wood in the middle of the tree kept under, winter pruning will be reduced to a minimum. Trees brought into a bearing state by the above system of pruning and training will not require root-pruning so often as if pruned on the cut-and-hack system which unfortunately prevails among some in the present day.—*Journal of Horticulture*.

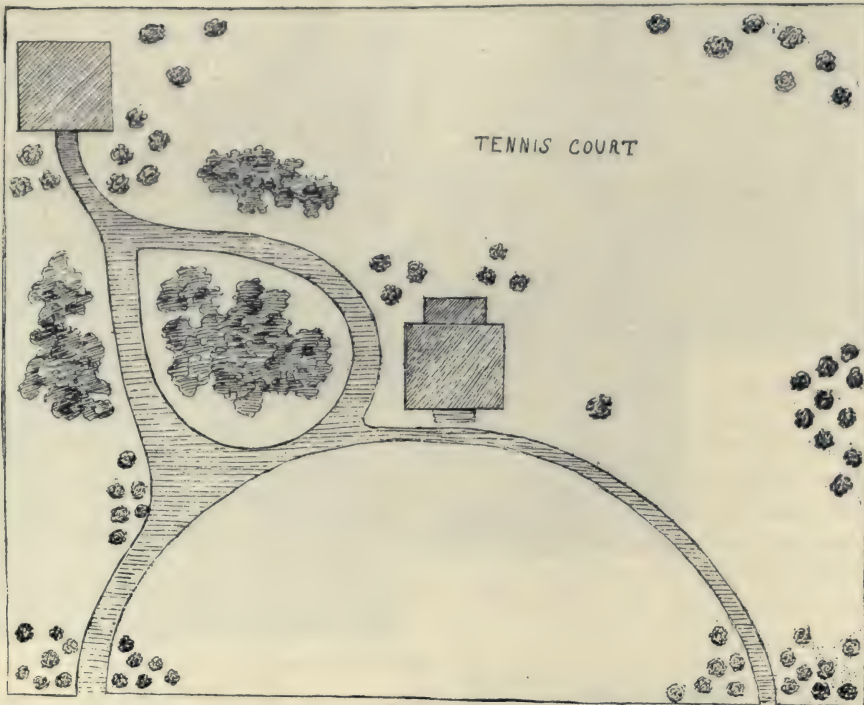


FIG. 1800. PLAN OF GROUNDS.

THE HOME AND ITS ENVIRONMENT.

OUR Canadian farmers and fruit-growers give too little attention to the decoration of their home surroundings. Every one may not be able to build an expensive house, but even a neat little cottage surrounded by the adornments of nature may become more beautiful than a mansion unadorned as to environment by either nature or art.

In the beautifying of a home, trees are essential. They are not only beautiful in themselves, but often serve to shut out objectionable views, to afford shelter from high winds and also to give shade from the heat of the sun. In grouping trees for ornamentation one should become quite familiar with the various forms and characteristic features of trees, for if a man knows nothing of the

shape which a tree will take when fully matured he may make serious blunders.

One mistake commonly made is planting too close. This very often shuts out views



FIG. 1801.

HOUSE FIRST ON AN OPEN PLAIN IMPROVED BY
PLANTING TREES, ETC.

of interest and beauty. The trees also become so entangled with each other that their individuality is entirely lost. They must all either be cut down, which means to begin again, or the least valuable thinned out and the remaining ones pruned and trimmed into proper shape. This is by no means an easy task nor is it a desirable one. Prevention is the best cure and I would therefore advise no one to plant too closely in the start.

Trees which are grouped for their special beauty should be so placed that the tallest trees will be in the centre, while around them may be planted the lower and more rounded ones. Trees with heavy foliage should not be planted by those with light foliage, but something of an intermediate tone should intervene.

For small places one should depend mainly on shrubs and by a little careful selection from the different families grand masses of bloom may be had throughout the season. Such shrubs as spirea, weigela, deutzia, hardy hydrangea, Japan quince and double flowering almond produce a magnificent effect when grouped together.

A broad, open lawn in front of the house has a pleasing effect. Trees or shrubs may be planted at the borders but never in the centre. A lawn should have a restful appearance to the eye, and if shrubs are scattered about the lawn this effect is destroyed. On the other hand, if the eye passes over a lovely, open green sward and then rests on



FIG. 1802. TURN IN ROADWAY.

masses of well grouped shrubbery the effect will be very pleasing. Groups may also be placed at the entrance or on the bend of a driveway, so that on entering you do not see all views at once, for if everything is seen at one glance your curiosity is soon satisfied, and it is therefore much better to have your trees and shrubs arranged so that from different points different views may be obtained.

Climbing and trailing shrubs are very useful and beautiful for covering cottages, verandahs, walls, trellises, etc. The cooling shade they afford to verandahs cannot be excelled by any artificial means. This is no doubt due to the excessive evaporation of moisture from the leaves. Perhaps one of the finest vines for covering a verandah is the Virginia creeper. It affords shade quickly and in the fall the leaves become a rich crimson. For covering stone or brick walls no other plant can excel the Boston ivy. The leaves

overlap one another and form a dense sheet of dark green, turning to crimson in the autumn. The first winter it may require a little protection from the frost, but when once it has required a good growth no further risk need be feared. The Clematis Jackmanni is a very beautiful climber for a verandah where a trellis may conveniently be put up. Its flowers are large, violet pur-

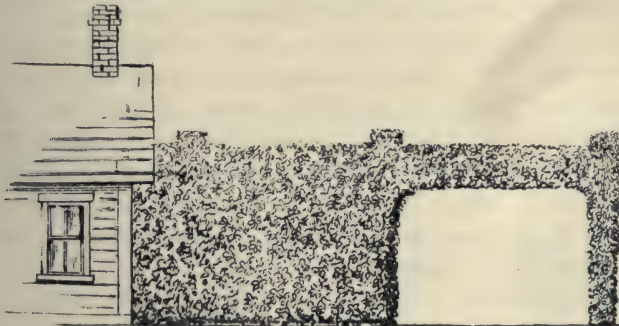


FIG. 1803. WALL WITH CLIMBING VINES.

ple and remarkable for their velvety richness. It should be planted in a deep, rich, sandy loam, well mulched in the winter by rotted manure. The bloom attains its highest degree of perfection if the plant has partial shade and liberal supply of water at the roots.

A home is not a home at all unless it is at least surrounded by a few of the beauties of nature. Her beauties are not hard to find, for man with his eyes open cannot help see-

ing them every day of his life. In beautifying your home the best guide you can find is nature herself. Just notice the woods in all their autumn glory, how many thousands are massed together and yet all is perfect harmony. We should therefore try not to mar nature's ideals, but rather to join with her in seeking to make our Dominion beautiful.

CHARLES ERNEST WOOLVERTON.

O. A. C., Guelph, April, 1900.

COOL STORAGE FOR APPLES.

SIR.--Could you give us in the Canadian Horticulturist a simple plan for a cheap building capable of holding from 100 to 500 lbs. apples, where the temperature could be lowered by a sub-earth duct or other means.

Last October we had very warm weather after the apples were gathered and what were in open buildings were much injured.

Some form of building in which the temperature might be partly controlled at least, would be of much value to the fruit growers.

J. C. GILMAN, Fredericton, N. B.

We have in Ontario and in New York State, at shipping points here and there, large apple storage houses, the walls, floors and ceilings of which are made impervious to cold or heat by dead air spaces, and by the free use of saw-dust; places where in fall and winter season cool air may be admitted from the outside when needed, and frost cannot enter when apertures are closed. Then we have some ice cooled store houses, which have been built for summer use in storing pears and peaches, but we do not know of one that would just meet the wishes of our subscriber so well as one recently described in Country Gentleman as follows:—

Our readers will understand that the details of this plan can be modified considerably where circumstances demand. In fact, this scheme would naturally not be adopted except on perfectly level land. Sloping land is very convenient for building such a stor-

age house. When one has a good slope he should make the front of his house on the lower end of the incline; he should make the floor just high enough so that barrels may be easily discharged from the wagon on to the platform at the front door; and he should let the building run back into the ground just as deep as the slope makes necessary. Putting the house partially below the ground will help to regulate the temperature.

The main storage room of the house herewith illustrated is 36 by 38 feet, and will hold just about 1000 apple barrels when full. They will then be piled up three tiers high, which is not an inconvenient arrangement. Apple growers have generally found it best to store apples in barrels. The house also has a sorting and packing room 10 by 36 feet, all of which space will be needed. This packing room stands next to the outside



Fruit Storage-House—Side.

FIG. 1804.

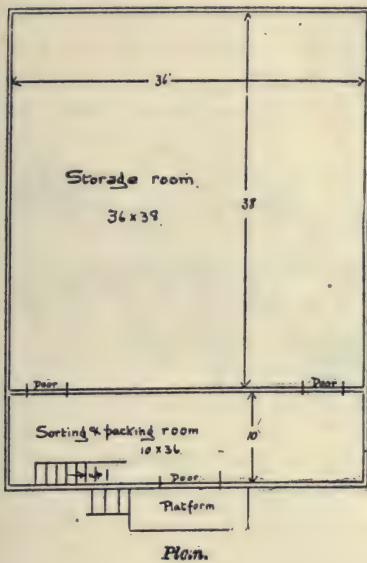


FIG. 1805.

door, and the only entrance to the storage room is through this sorting room. This protects the storage room from outside temperatures, and permits work to go on, either bringing in fruit or taking it out, without disturbing seriously the atmosphere in the storage room. The space overhead will be needed for storing barrel stock, &c.

The front (double sliding) door should be 6 feet wide, and the two inside doors should be 3 feet 6 inches. It will be an advantage to have two inside doors, arranged as shown in the plan. If a single door is used between the two rooms and is put in the middle of the partition, it will admit more drafts of outside air to the storage room, and will not be so convenient in handling barrels from one room to the other.

No ice or artificial refrigeration is needed in this house, at least not for any place north

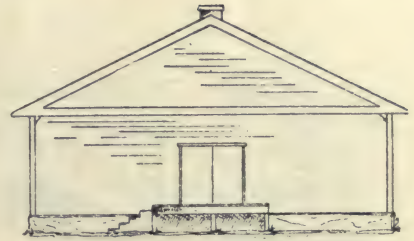
*End Elevation.*

FIG. 1806.

of Virginia. The temperature can be easily controlled by the windows and the ventilators shown in the various elevations. This method has been tried by hundreds of fruit growers, and has been found much superior to ice storage under most circumstances.

The walls should be double-thick. Inside they should be boarded with matched lumber on the studs, and then closely ceiled on top of this. The ceiling should also be heavily painted. This is absolutely essential. Outside they should have a sheeting of inch lumber and a coat of building paper on top of this, the whole to be covered with matched novelty siding. This may seem a good deal of material to put into the walls, but it will pay. Still, one or two layers may be omitted "at the owner's risk."

This house will cost from \$800 to \$1200, depending on who builds it, and where.

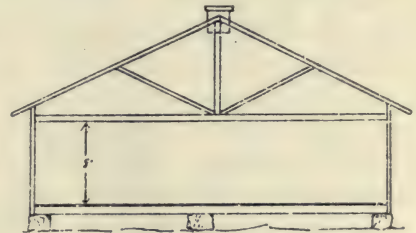
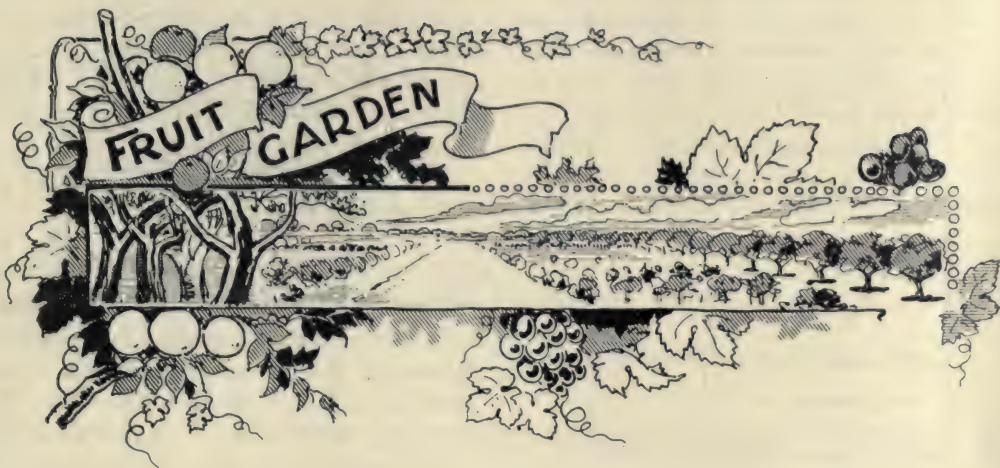
*Section.*

FIG. 1807.





FRUIT CULTURE.—IV.

PRUNING.—As the matter of laying out the orchards and planting were dealt with under “General Principles,” it may be assumed now that the trees is planted, and the question is,—how prune? If the average orchardist realized the importance of early pruning, of careful and systematic shaping of the tree during the first few years of its life, there would not be so much injurious slashing and butchering of bearing trees. Directly the tree is planted its future shape and habit should be formed to a certain extent. Severe cutting back has got to be accomplished with the newly-planted tree that the top may correspond with the shortened roots, but let the cutting back be on some system. There are two types to be aimed at, the one represented in Fig. 15, of the open and spreading character; the other in Fig. 16, that where the leading shoot of the young tree is trained up. This latter plan gives a stronger and a better tree, but the form is not practicable with all varieties. In such a plan the leader is selected and

trained from the start as in Figs. 17 and 18, the other branches being shortened back so as eventually to form a well-balanced head. In the other plan three or four branches are

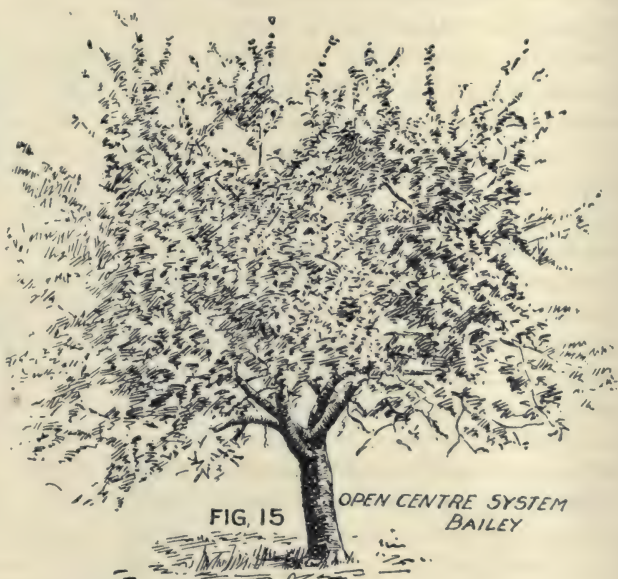


FIG. 15

OPEN CENTRE SYSTEM
BAILEY

allowed to form a head and the centre is kept more open. Great care should be taken in shaping the top, not to allow the formation of a crotch. A tree of that kind

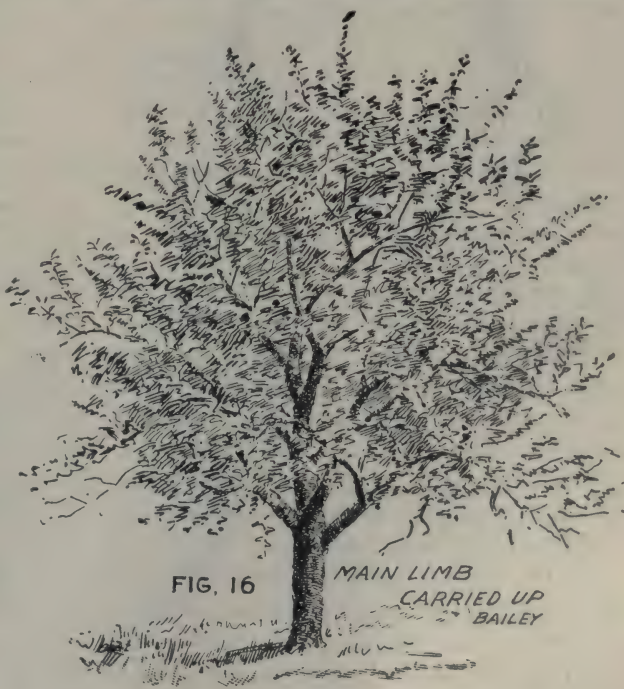
will be likely to come to grief in a high wind or under a big load of fruit. The branches should be taken alternately so as to allow the strain to be divided and not to fall on the main crotch. See Fig. 19.

The head should start about four feet and a-half from the ground, Figs. 20 and 21 showing the shortening back process of a young tree which had got too tall.

During the first summer's growth, if proper care is exercised and undesirable shoots pinched off, the tree (Fig. 19) will, by the fall, be like Fig. 22, which may be considered a well formed head. When the general shape of the top has got well established, and this should be done by the end of the first three years, all the pruning required will be the removal of limbs that cross or rub each other, or that make the head of the tree too dense. The best time for pruning in Ontario is probably at the close of the winter, and just before the sap starts. By systematic work, as suggested, a sharp knife will do all the pruning, and the tree will be spared the shock of losing large limbs. It is necessary, however, sometimes to take off good-sized branches, and there is a right way and a wrong way of accomplishing such work. The wrong way—often practised—is to saw off the limb, leaving a stub of wood sometimes several inches long. Without going too deeply into this question it may be said briefly that the healing of a wound is entirely dependent on the flow of the cambium, or sap, layer. The following illustrations from Prof. Bailey's excellent publication, "The Pruning Book," will point the moral and adorn the tale. A limb removed as in Fig. 23, simply means the existence of a dead stub, through the base of which rot is likely to attack the tree. Fig. 24, where the limb is cut close to

the tree, shows that the healing process from the flow of the cambium layer is rapidly taking place. Large limbs should be removed just before growth begins, and the wounds should be coated with paint. But, most important of all, "*the cut should always be made close to, and perfectly even with, the outline of the trunk, without regard to the size of the wound made.*"

CULTIVATION OF THE ORCHARD.—In the chapter on "General Principles," this matter has been treated at some length, but the question arises, what crops may be grown in the orchard till it reaches bearing age? Grain and hay should certainly *not* be, as, apart from the plant food they take from the soil, the amount of moisture they rob the trees of is incredible. If such crops are grown, there should be a space of at least four feet of cultivated ground next the tree row. The best crop for the young orchard would be root crops, potatoes and corn, and every year the trees should have more room. Fig. 1, 2 and 5 show how extensive is the





root system of trees, and it should be remembered that unless very high manuring and thorough cultivation are given, the trees must inevitably suffer if the roots of other crops are extending over their feeding grounds. After the trees are in bearing it would certainly be wiser to give the trees all the ground, keeping the ground cultivated with the harrows or cultivator. About August 1st, when growth has ceased, it is a good plan to plow up to the trees and sow crimson clover, rye, or some other cover crop, to take up the root moisture which

might induce an undesirably late growth in the trees, and to form a protection for the winter. Such a crop, however, should be plowed under very early in the spring, not left to evaporate moisture and be plowed under with more or less injury to the feeding roots of the trees. As to the question of sod in the apple orchard, it might be confidently said that the best and most successful orchardists are unanimously against the practice. Insects and fungous diseases are usually worse in such orchards. They seldom get what they should, viz. : a generous

top dressing of manure, and, worst of all, there is an increasing tendency towards a surface habit of the roots. Fig. 2 (of this series) shows where the roots are in sod. In a dry season such trees decidedly suffer, and, if left too long in sod, the eventual plowing becomes a difficult and very destructive process.

As to the distance in planting something depends on the nature of the soil and the locality. With vigorous growers and a good soil, forty feet apart is better than a less distance. From thirty-five to forty feet will be none too far, if every care is given to the orchard. The latter distance will pay for itself by the additional convenience in spraying, cultivating and picking, and by the improved quality of the fruit.

THINNING has not been touched on, though it will be dealt with fully under the peach. The thinning of apples has been successfully attempted in New York and Massachusetts. The work was done by hand, and at a cost on large trees of from 30 to 80 cents a tree. With good varieties it would undoubtedly pay where the trees were loaded, inasmuch as it would not only increase the size of the fruit and lessen the drain on the tree's vitality, but it would largely do away with the 'off year' which is simply a result of overbearing.

VARIETIES.—For a specialized list, suited to the various counties of Ontario, readers are referred to pages 141 and 142 of the report of the Ontario Fruit Growers' Association for 1893.

For the coldest sections of the Province the following may be recommended :

SUMMER.—*Yellow Transparent, Duchess.*

AUTUMN—*Gravenstein, Alexander, Wealthy.* St. Catharines, Ont.

M. BURRELL.



FIG. 23.
Improper cutting of a limb



FIG. 24
Proper cutting of a limb.

WINTER—*Pewaukee, Scott's Winter, Golden Russet.*

For the milder districts :

SUMMER—*Yellow Transparent, Duchess.*

AUTUMN—*Gravenstein, Colvert, Wealthy, Ribston, Fameuse or Snow.*

WINTER—*Northern Spy, Baldwin, Ontario, Greening, Cranberry Pippin, Golden Russet, Blenheim Pippin, Stark and Ben Davis.* The two last need not be included in a list for home use.

FUNGI AND INSECTS—The insects chiefly attacking the apple are the codling moth, the canker worm, tent caterpillar, the borer, the oyster-shell bark louse and the apple louse. Instructions on the methods of fighting these pests will be found in the 1896 and 1897 report

of the Superintendent of Farmers' Institutes, pp. 180 to 196.

Apple Scab, Fig. 24 A—Leaf blight, canker, etc., are referred to in the Government Bulletin "Instructions in Spraying." A careful examination of the report of Superintendent of Spraying will convince orchardists that apple-scab can be successfully controlled by faithful and intelligent work.

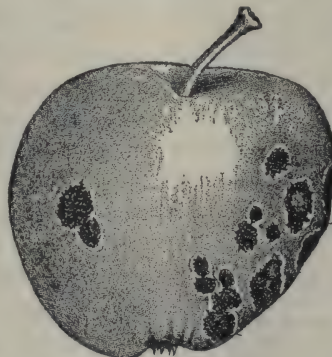


FIG. 24A Apple-scab.

DWARF PEARS.

HERE is one special advantage in growing dwarfs, over standards, and that is the ease of gathering the fruit. Few, however, seem to have the best success with a dwarf pear orchard, owing to common faults of treatment.

These are (1) *planting on poor soil*. A thin light sand is the worst possible, and would not yield fruit of large size, nor any quantity of it. A sandy loam will do very well, but a rich clay loam, well drained, is best of all.

(2) *Lack of Cultivation*. No worse treatment could be given than to leave a dwarf pear orchard in sod, or without cultivation. A standard pear tree strikes its roots down deep, and may endure neglect and yet give good crops of fruit, but the quince roots, on which the pear is dwarfed, are surface feeders, and cannot thrive without good tillage.

(3) *Lack of Manure*. Here is a common fault with all orchards, and the pear is perhaps more often neglected than the apple or the peach: as a standard, it will endure much abuse and neglect, yet succeed fairly well. The dwarf, however, is different. Its quince roots do not reach out very far to collect nourishment, and unless the soil about the tree is both well cultivated and made rich in fertility, little result may be expected in fruitfulness.

C. S. Mills, of Allegan Co., Michigan, has a fine dwarf pear orchard of 1200 trees, a great commercial success. He speaks as follows on this question of cultivation and manure:

"Plow up to the trees in the Fall, and away from them in the Spring: thus the ground is kept nearly level during the working season, and when cold weather comes, the ridging up assists drainage, and also helps protect the tree roots. For the first three years almost any hoed or cultivated crop may be grown among the trees; after that, they should have all the ground to themselves—

with regular harrowings up to about August 1st. At the last cultivation, oats, Crimson clover, or some other green crop may be sown to hold the ground and plow under in the Spring: One word as to plowing: do it either before the trees blossom, or after; never work the ground when the trees are in blossom.

"The manure question is one that every pear grower has his own notion about. Most growers believe that stable manure is bad for pear trees—that it causes the blight—that the trees must be kept back rather than pushed along. Such is not my idea. For ten successive years these trees had a good warm coat of strawy manure applied in the fall or early winter. For the last six years they have had nothing. Blight has bothered us but little, in all this time. But the trees grew, and are still growing; what's more, they bore young, and are still bearing."

(4) *Neglect of Pruning* is another serious mistake of dwarf pear growers; or if they prune it is without a system, or indeed any definite idea of form or symmetry. A dwarf tree under such treatment soon grows too high, and when laden with fruit soon breaks off at the point of union. Proper treatment of a dwarf demands annual and vigorous cutting back of all new wood if over a foot in length. The idea in mind for a dwarf pear should be pyramidal, thus causing all the heavier branches to grow near the ground, and the fruit to be within reach.

Figure 1808 gives a good idea of the general form which we should aim at in pruning our dwarf pears, and should be persistently carried out.

(5) *Unprofitable Varieties* are another cause of failure. The Bartlett, for example, is not a success as a dwarf; while on the other hand the finest Duchess, Anjou, Clairgeau and Louis Bonne, grow on dwarf stock.—

These last are four varieties which seem to take with our English relations, and should be the chief varieties now planted for



FIG. 1808.

export. As will be seen from Prof. Robertson's report, A No. 1 pears, $2\frac{1}{2}$ and 3 inches in diameter, brought as high at \$1.40 per case or about 20 lbs., or the equivalent of about \$14 per barrel, for those which arrived in good condition. The great question is

how to control the temperature of the ship in transit; and if once we are guaranteed that the temperature will be kept between 34° and 40° , for example, we can grow pears for the English market with confidence of great profit.

TREATMENT FOR SAN JOSE SCALE.



SERIES of meetings of fruit growers has been held in various parts of the Niagara District to consider the modes of treatment of orchards for destruction of the scale. At Grimsby the meeting was presided over by Mr. M. Pettit, of Winona, who gave an outline of the measures already adopted by the Department to cope with this pest.

Prof. Fletcher, of Ottawa, gave some details concerning the terrible nature of the scale, and advocated treatment with whale oil soap as better than either kerosene or crude petroleum. This soap is made from caustic potash and fish oil, and is used in the proportion of two pounds to one gallon of water. The cost of treatment would not exceed 10 cents a tree in an orchard of ordinary sized trees.

Prof. Owen, of Catawba Island, Ohio, said that in his experience the *whale oil soap* was quite effective even on its first application, and after four years' treatment orchards were 20 per cent. more healthy and vigorous than when treatment was begun. Indeed the whale oil soap seemed to be in a measure a fungicide as well as an insecticide, destroying the aphid, preventing leaf-curl of the peach, and so clearing the trees of fungi, that the fruit on treated trees attained a larger size than on those untreated. The cost of treatment—ten cents a tree—

was a good investment, often paying 500 per cent.

The time to treat with whale oil soap is in the spring, during a period of two or three weeks, from the time the buds begin to swell until out in bloom. One good treatment at this time is usually considered enough.

The method of treatment is to get large wagon tanks and put a good pump at the back; the driver stands on a platform at the rear and does the pumping; two lines of hose are used, with which about 150 trees per diem can be treated. Of course every inch of the wood must be covered.

The Cherry aphid may be destroyed with this soap, which will, in certain seasons, be a great boon to cherry growers.

In the *preparation* of the mixture, first heat the water in a large agricultural boiler, holding say one barrel of water, then when boiling add the soap. If possible apply it hot.

After many questions had been put by the audience and answered, the following resolution was unanimously agreed upon, and ordered to be forwarded to the Ontario Minister of Agriculture, viz. :

"That in the opinion of this meeting the Government should in every way possible encourage the treatment of trees, infested by the San Jose Scale, the Black Aphid or Curl Leaf, by the application of whale oil soap or other approved remedies; also that the inspection of orchards as hitherto practised be continued."

OUR FRUIT IMPORTS.

STATEMENT SHOWING THE VALUE OF THE UNDER NAMED FRUITS ENTERED FOR CONSUMPTION IN CANADA DURING THE YEARS NAMED.

FRUIT—GREEN.	1890	1891	1892	1893	1894
	\$	\$	\$	\$	\$
Apples	239,332	55,118	80,369	35,165	50,526
Berries—Straw., Rasp., etc.	*72,399	34,280	33,463	32,923	46,751
Cherries	8,033	12,369	11,996	11,464	9,616
Cranberries	228	26,905	41,735	29,363	49,131
Currants	492	83	680	35	27
Grapes	79,009	79,452	69,975	70,207	77,101
Oranges and Lemons	456,248	670,127	626,453	555,363	774,612
Peaches	†107,636	32,039	80,768	61,982	66,764
Plums	‡24,582	21,210	24,184	20,286	30,315
Other dutiables	66,578	43,332	75,191	65,364	943
Quincies	1,882	1,275	1,287	1,274	73,942
Blue and other wild berries	include above	1,995	137	2,781	1,473
Bananas	271,445	324,790	298,080	437,181	504,331
Pines	53,145	68,873	59,282	67,998	89,081
Guavas .....	.....	576	509	720	973
Olives and Apricots .....	.....	13	\$75,250	.....	.....
Raisins	402,869	427,997	329,311	311,409	326,939
Filberts and Walnuts	65,089	142,531	130,059	139,095	130,144
Total value of all fruits imported.	{ Dutiable....	Not given in 1890, 1891, 1892.		1,817,450	2,102,099
	{ Free			508,680	595,868
	{ Total			2,326,130	2,697,967

* Includes Cranberries. † \$105,330, imported free of duty. ‡ \$23,363, imported free of duty.

§ There is something wrong in this. They were free, and probably bananas make up the most of the \$75,000.

FRUIT—GREEN.	1895	1896	1897	1898	1899
	\$	\$	\$	\$	\$
Apples	46,554	52,134	36,974	76,750	39,238
Berries—Straw., Rasp., etc.	47,987	32,909	63,528	57,956	83,790
Cherries	9,767	7,626	8,609	9,342	12,332
Cranberries	9,979	32,286	19,118	18,798	36,400
Currants	59	256	546	71	18
Grapes	56,118	65,184	47,681	56,020	51,841
Oranges and Lemons	749,264	652,150	592,138	687,966	799,958
Peaches	38,092	99,565	52,166	43,424	66,526
Plums	22,688	26,181	24,131	26,101	28,824
Other dutiables	60,838	54,066	45,387	56,508	49,178
Quincies	487	590	394	356	276
Blue and other wild berries	963	477	563	636	425
Bananas	470,457	489,812	402,121	460,450	513,250
Pines	62,456	52,471	73,046	47,197	51,371
Guavas	872	477	373	2,960	425
Olives and Apricots .....	.....	.....	.....	.....	.....
Raisins	353,631	330,760	327,509	404,937	412,168
Filberts and Walnuts	116,022	121,493	110,245	127,627	172,229
Total value of all fruits imported.	{ Dutiable....	1,949,102	2,012,337	1,754,803	2,469,858
	{ Free	535,248	476,103	476,103	510,855
	{ Total	2,484,350	2,554,272	2,230,906	2,749,878
				2,749,878	3,036,565

I hope the preceding will be useful to your readers. I have excluded dried fruits, except raisins and nuts, because we do not produce them, with only an exception as to apples, pears, peaches and apricots, and these are not given, except apples, which are not of any large amount. Nuts are included because we are able to grow them, and ought, to while we might try raisins.

All our green fruit is imported from the United States, except grapes, oranges and apples.

Curiously enough we have brought apples from Australia. Thus in 1895 the importation was \$1,277; 1896, \$4,509; 1897, \$976; 1898, \$0; 1899, \$0.

This year we have had the first direct importation of oranges from Jamaica into Ottawa.

It is peculiar that we are prepared to pay for taking oranges and lemons to Engl'and and then freight them back.

We import of this fruit from—

	G B.	U. S.	B. W. I.	Foreign W. I.	Spain.	Japan.	Italy.	Australia.
1895	\$93,928	\$376,166	\$3,464	\$878	\$6,596	\$2,316	\$257,160	\$2,874
1896	165,137	330,760	6,541	456	6,325	2,982	150,527	1,137
1897	115,335	306,871	6,728	124	....	....	144,207	....
1898	73,174	439,206	14,171	180	....	5,031	137,535	1,963
1899	93,800	473,194	15,570	117	4,080	3,811	205,853	1,603

As to the grapes which are imported from England and other countries other than the United States are Malagas, and are not grown here. Of those from the United States it is impossible to tell what part is competitor against our own grapes. However, the record is this way ;

	G. B.	U. S.		G. B.	U. S.
1890	\$31,331	\$47,503	1895	29,711	26,068
1891	32,847	46,413	1896	35,577	29,007
1892	29,175	38,610	1897	20,393	26,671
1893	31,979	38,146	1898	21,130	34,097
• 1894	36,181	40,830	1999	23,226	27,501

It would appear that notwithstanding the general growth of trade, the importation of grapes is not growing, and perhaps means we are supplying our own market more fully than "has been."

G. H. FAWCETT.

Ottawa.

IN GERMANY certain restrictions have been put upon the importation of American fruit owing to the San Jose Scale scare. Prof. L. Reh, of Hamburg, has conducted a number of experiments for the purpose of determining the danger from the packing of imported fruit, with the general result that living scales were very seldom found in such ma-

terial. Experiments were also instituted to determine how long the scale insects would live when removed from the fruit and carefully transported to other fruit or to other situations. The experiments indicate that death usually results within a short period after such removal.

THE EXPORT OF TENDER FRUITS.

WE regret that the trial shipments of tender fruits which have been conducted for the last year by the Department of Agriculture at Ottawa are to be discontinued at the present time. We are aware that the Paris Exposition is important, but to us it is not nearly as important as the extension of the markets for our grapes, peaches, pears and summer apples. Even the shippers at Grimsby who have furnished the fruit for the three years past are not confident enough in present conditions to continue the work on their own account, for while some shipments have sold splendidly others have been spoiled in transit, and the total result of the season has always been loss. Fortunately for the shippers the Department guaranteed them the market price at home, a bare return however for the time and expense of such careful selection and packing.

Just one thing is lacking, and, that granted, the fruit growers of the province would begin exporting these fruits at their own risk, viz.: *a guarantee of safe carriage within certain limits of temperature.* Hoping to secure this for the public benefit we called a meeting of growers who have been concerned in previous shipments to discuss the situation. The following resolution was agreed upon and forwarded to the Hon. Sidney Fisher, viz.:

Resolved, that this committee desire to express to the Minister of Agriculture, The Hon. Sydney Fisher, their high appreciation of the efforts made by his department in the way of experimental shipments of fruit during the past three years; but they would exceedingly regret the discontinuance of these efforts to introduce our fruits into the English markets at the present time. They would humbly request that the department would

still further encourage the development of the export trade in tender fruits by guaranteeing safe carriage of the same within certain degrees of temperature, and in a compartment especially prepared for the carriage of fruit only.

They would further request a personal interview with Mr. Grindley and with Mr. Robertson to consider details of methods of operation.

The following extract from the American Agriculturist gives the experience of a writer in cold storage of some of these fruits, and may help us in determining the proper temperature for the ocean transport.

"Beginning with plums; those varieties that are more firm, not so juicy to begin with, and ripen slowly, are the ones that keep the best. The most desirable temperature for plums is 34 degrees. They will keep well for two or three weeks, and then they begin to decay. They seem to deteriorate about the stone and go very quickly, so that two or three weeks is as long as they should be kept in cold storage. The main object in storing fruit of this character is simply to keep them long enough to avoid gluts in the market, and to that end only can cold storage be used in storing plums, peaches, cherries, etc. Peaches do best at a temperature of about 38 degrees. There is no fruit more tender and that should be more carefully handled than the peach.

"The temperature for pears is from 38 to 40 degrees for fall, and from 34 to 35 degrees for winter pears. The varieties which have large cores seem to keep best. The Vicar and Winter Nelis keep in very good condition for two or three months. There is a tendency in pears to decay about the core while the outside may look well.

"With most varieties of apples, the temperature should be kept as nearly as possible at 32 degrees in a dry atmosphere; that is, an atmosphere that is not moist enough to aid fungous growth. Some varieties cannot be submitted to so low a temperature, and it is still an experiment as to just the exact temperature for the different varieties. Jonathans, for instance, if stored in a temperature of 32 degrees, in nearly every case have tended to produce what is known as scald. In picking apples for cold storage, those fruits keep the best that are not too ripe—they should be just a trifle green. Use only perfect fruit, sorted properly, graded well and packed carefully."

But the difficulty is to get a temperature guaranteed on ship board, or if guaranteed, to be honestly kept.



ASPARAGUS BEETLES.



AMONG the recent arrivals of new insect pests in Ontario are two small beetles which have done harm both in Europe and the eastern United States. That these beetles are capable of doing much damage to beds of asparagus may be seen from a study of the records of their depredations in the United States. Six years after the arrival of the first beetle—the common asparagus beetle—the loss in Queen's Co., N. Y., alone in one year amounted to \$50,000, and frequently since asparagus crops have suffered severely in many of the infested sections of New England and the northern central states. Not only were the marketable beds badly injured, but the new beds also were seriously attacked, and in many cases destroyed. Illustrations of these two beetles are to be found on page 35 of the Agricultural College Report just issued.

In 1898 the asparagus beetles reached the American side of the Niagara River, and it was then predicted that the Niagara region of Ontario would soon feel the effects of the invasion. Sure enough, the beetles appeared in several localities as far west as St. Catharines in the spring of 1899, and their presence may be confidently expected in asparagus gardens over a still wider area in the spring of 1900.

The two beetles which feed on asparagus shoots are quite unlike in color: the common asparagus beetle (*Crioceris asparagi*) has steel-blue wing-covers, marked with lemon-colored splashes, and bordered with the same color, while the 12-spotted asparagus beetle (*C. 12-punctata*) has orange-red wing-covers, each marked with six black spots. The grubs of the two species are even more unlike than the adults are. The grub of the former is dark grey in color, while that of the latter is orange, and on ac-

count of its color resembles the grub of the Colorado beetle.

The habits and life history of the common asparagus beetle are much better known than those of the 12-spotted species. The eggs are laid soon after the appearance of the beetle in the early spring, usually on the stalks of the new shoots. They stand out at right angles to the stalk, are about one-twelfth of an inch long, and of a dark brown color. The grubs, which hatch from the eggs in about a week, feed upon the young succulent shoots for about two weeks, when they descend into the ground, and change into pupae within dirty cocoons. In another week or ten days the full fledged beetle emerges to lay eggs for another brood. Thus it will be seen that the common asparagus beetle completes its life history (from the deposition of the eggs on the stalks to the time the adult beetle appears) in about four weeks or one month.

In the case of the 12-spotted asparagus beetle, the eggs have been seldom seen, and the habits of the young grubs are not therefore understood. It is supposed, however, that the grub feeds during a part of its existence in the berry, and descends to the ground to pupate. In Europe it is said to pass the winter in the pupal condition.

REMEDIAL TREATMENTS.—A very important point to remember in the fight against the asparagus beetles is the destruction of all stray and volunteer asparagus plants in the neighborhood of the beds. If this is done the beetles cannot deposit eggs on plants outside of the beds, and no infestation of the beds can take place from this source.

Another important point is the spraying of the beds twice or three times after the cutting season with Paris green, for if the late broods are neglected and permitted to in-

crease, then the number of beetles wintering over will be large and the damage to the spring shoots will be serious.

There are two or three practicable remedies for the prevention of the destruction of the shoots by the grubs of the beetle: 1. Cut all asparagus plants about the first of May and cut the new shoots regularly every few days. By the adoption of this plan the beetles are forced to lay their eggs on the new shoots, and as those are cut every few days further development of the grubs is prevented. 2. Permit some of the shoots to grow as traps upon which the beetles may lay their eggs, but destroy these every week and allow other stalks to act as traps to take their place. In this way the beetles are not allowed to develop, with the result that their numbers will decrease as the season advances.

It is very important that these new arrivals be well looked after, and prevented from spreading to other counties from Lincoln and Welland. From a study of the spread of the common asparagus beetle it would appear that it has followed the water ways into the interior of the country, although it has undoubtedly been distributed occasion-

ally by ordinary commercial means, viz., by railways, nursery stock, etc. Moreover, it is more likely to spread westward along the shore of Lake Erie than eastward along the shore of Lake Ontario, for the same climatic reason that the San Jose Scale takes more kindly to the Lake Erie counties than to the Lake Ontario counties.

In conclusion, two very interesting features may be mentioned in connection with the invasion of the Province by these asparagus beetles: 1. The two species have arrived at the said time, although the common asparagus beetle reached the United States twenty-five years before the 12-spotted species, and, as a rule, the former species has preceded the 12-spotted in the invasion of the States to the south of us; and 2, The 12-spotted species was the more abundant form last season in the Niagara district. Every report dealing with the depredations of the two species in the United States makes the assertion that the common form was always the more destructive and abundant.

WM. LOCHHEAD,

Professor of Biology.

Ontario Agricultural College,

Guelph, April 20, 1900.

JAPAN PLUMS.—Mr. C. M. Hooker, of New York, recently sent a lot of cold-storage Duchess pears to London, which returned \$13 to \$14 per barrel. The Japan plum, Wickson, is reaping golden opinions on the shores of Seneca Lake, N. Y. Some extra fine fruit produced by heavy thinning brought \$3 per 15-pound case in New York city, or \$12 per bushel, when Lombards were bringing but 50 cents per bushel. The Wickson has had the reputation of being a shy bearer, and Mr. Willard has hitherto

condemned it for that reason. He has now more faith in its productiveness. Red June and Burbank are the best market varieties of Japan plums for this section. Abundance is of fine quality, but not as good a shipper as the other two. Canned Burbanks are second in quality only to Reine Claude and French Prune. October Purple has been a disappointment to most growers thus far. All Japan plums need heavy thinning to be of good size. Thinning also lessens the rot. *Country Gentleman.*



ANNUAL FLOWERS.

IT is the object of this paper to give a few hints on the cultivation of annual flowers, especially to those who are not much accustomed to grow them. We, as farmers, do not pay enough attention to the cultivation of flowers and beautifying our homes. We are apt to get into the narrow rut of growing only what can be sold or eaten. We do not therefore enjoy



FIG. 1809. ASTER.

rural life to the full extent of our privileges. You say the farmer has no time to grow flowers; you forget that he takes time to grow anything he specially desires, and that the most successful farmers are those who have the most to do; they are also the ones that usually grow the most flowers.

More attention has recently been devoted to annual flowers, and many improved kinds are being introduced every year. In selecting varieties you must choose those best suited to your special location and requirements. Perhaps the most important con-

sideration is to select the kinds you love most. To be successful in the cultivation of flowers, you must have a love for them. It is best not to grow too many kinds at first. It is wonderful how our love for them will grow when we begin their culture. In the following notes I will refer to some of the most common and easily grown sorts, giving such hints as may be helpful to the beginner. If we want early flowers, it is best to start a part of our seeds in boxes in the house. For this purpose I make boxes any convenient length and width desired, usually about twelve by twenty inches and four inches deep, leaving cracks in the bottom for thorough drainage. Fill the box about two and a half inches deep with good fine rich soil. Any good garden soil will answer, but a compost of well rotted cow manure and sods is best. If the soil is of a heavy or sticky texture, mix in one-third sharp plastering sand; this should be put through a coarse sieve, using the coarse material that will not go through the sieve in the bottom of the box and fine soil on top, in which to plant the seeds. After leveling the soil in the box, take a brick and firm it down a little. Take a piece of lath a half

inch shorter than the width of the box inside, bevel off one edge V shaped, with this sharp edge make the little drill in which to sow the seeds, and use the other edge to cover them by pushing the soil in from either side and firming it down well immediately over the seeds. Several kinds may be planted in the same box. Put the drills about one and a half inches apart and sow quite thin. The firmer the seed the less soil should be used in covering. Nasturtiums may be planted to the depth of one inch, while pansies, verbenas, asters, dianthus, phlox drummondii, etc., should not be covered with more than a quarter of an inch of soil.

ASTERS for early flowering should be sown in the house early in April, when two inches high transplant to small pots, or flats, three inches apart each way. They are quite hardy, and can be transplanted to the garden when the peach trees are in bloom. They make better plants by transplanting once or twice rather than sowing the seed where they are to remain. In good soil the plants should stand twelve to eighteen inches apart. For later bloom, plant seed out doors as soon as the trees are out in leaf. Thoroughly cultivate the soil among the plants, and when they are nicely in bud give a mulch of coarse manure, cut straw or lawn clippings. This will keep the soil cool and moist during the hot weather, which is necessary if you want the best flowers.

DIANTHUS—hardy biennial, that flowers freely the first season, and gives a wonderful variety of colors. Seeds may be planted and young plants treated as indicated above for asters. When planting where they are to remain, they should stand ten or twelve inches apart. But few flowers give such satisfactory results for the small amount of labor required to grow them.

NASTURTIIUMS—These old garden favorites have been so much improved of late that they are now fully entitled to a place in

the same rank with asters, pansies and sweet peas. The seed can be planted where they are to remain as soon as the soil is dry enough to work in spring. I prefer to plant a few seed for early bloom in small pots in the house. One seed in a pot, planted the last of March or early in April. But few flowers will continue to give such a quantity of bright bloom during the hot dry weather of midsummer as the nasturtium. The seed should be planted one inch deep, and the soil pressed over them firmly to insure good germination. The tall growing sorts should have a trellis for best effect. They also do nicely trailing on the ground, if planted about two feet apart, for trellis, eight to twelve inches. The Tom Thumb or dwarf growing varieties are best for beds or borders. They succeed in any good garden soil, and are as easily grown as a potato. They should be planted twelve to fifteen inches apart. If they are planted too close they are apt to rot off during wet weather.

PANSIES require a cool moist situation for best results, rather strong clay loam is preferable, but they will succeed on any good garden soil. The large flowered varieties will not stand so well during the hot dry weather of midsummer as the medium sized kinds. Sow seed as early in spring as the soil will permit. These will bloom freely during the latter part of summer and fall. All blooms should be kept cut off as they begin to fade. If they are allowed to seed they soon become exhausted. After blooming for a considerable length of time the plants make long straggling branches, these should be cut off from time to time, which induces new branches to grow from near the base of the plant, and thus prolong its usefulness. By giving the plants a mulch of coarse manure leaves or straw when the ground freezes, they will produce a wonderful profusion of bloom early the following spring.

PETUNIAS—To grow the better kinds of

these old favorite flowers it is best to sow the seeds during April in shallow boxes in the house. The seed is so small that it must not be covered more than one eighth of an inch for best results. Transplant as soon as the young plants are large enough, to small pots or flats. When planted where they are to remain they should be at least two feet apart each way. It is better, however, to plant more thickly, and when the plants come into bloom weed out the poorest plants. There is always some poor kinds will come from the seed of the very best strains we can get.

PHLOX DRUMMONDII—Sow the seed as early in spring as the soil can be worked, not more than one quarter of an inch deep, when the young plants are about two inches high transplant where they are to remain, setting them ten to twelve inches apart.

SWEET PEAS—Sow as early as the soil can be worked in trenches four inches deep and two or three inches apart. Cover two inches deep, working in the balance of the soil gradually as the plants grow. When they are four or five inches high they should have a trellis of poultry netting, brush or twine. To get the best results they require a well drained rich clay loam and thorough

cultivation until they are a foot in height, then mulch with coarse manure or straw.

VERBENAS—Sow seed early in April in boxes, and transplant as soon as they have made three or four leaves to small pots or flats, and, when the trees are starting out in leaf, plant out of doors twelve to eighteen inches apart.


To grow good annuals the soil should be made rich and given thorough cultivation. Water with the rake, in other words cultivate often by stirring the soil frequently with the garden rake. This prevents the soil from drying out. Do not wait for the weeds to grow, but rake over the soil at least two or three times a week in dry weather. It can be done more quickly than watering and gives better results.

In case the soil should become too dry in case of a long drought, water thoroughly at night. The soil should be saturated to the depth of a foot. Next morning, as soon as it can be stirred without cleaving together, use the rake again. If this method is properly followed up you will not require to water very often, even during a dry summer, and you will get splendid results.

W. W. HILBORN.

Leamington, Ont.

AN EXQUISITE SHRUB.

 OF THE Spireas there are many ; some are shrubby, some herbaceous, some bloom early and some later. Their blossoms vary in color and form. Their foliage is commonly interesting.

The Spirea Thunbergii is not much known. It is a dwarfish elegant grower. Its beautiful light green foliage comes very early, and is almost linear. This narrow foliage upon its fine slender branches is a very suitable and elegant addition to a bouquet the season through.

As autumn approaches the leaves assume many golden scarlet and bronze colors, and there remain for weeks and weeks exquisitely beautiful. Many trees and shrubs take on beautiful colors for a few days, then we see bare poles. The very early scattered white flowers of the Thunbergii are very nice but are not remarkable.

The coming flower lovers will plant a clump of Spirea Thunbergii in their beds of shrubs or flowers.

Niagara Falls South.

E. MORDEN.



FIG. 1810. WINDOW GARDEN.

TIMELY TOPICS FOR THE AMATEUR—III.

THE month of May is often spoken of as the "merry month of May," doubtless deriving this pleasing appellation from the fact that "May" blossoms and bright spring weather usually make their more than welcome appearance during this, the first real spring month of the year—compelling us by their brightness to forget the customary vicissitudes of April weather, and the long months

of winter, past and gone. The routine of garden work in May and early June depends perhaps more on the prevailing temperature than during any month of the year, at least so far as tender plants are concerned; as the trying ordeal now takes place of transferring most of these plants from their winter quarters to the vagaries of spring weather out of doors. Care must be exercised in exposing plants of tender growth too ab-

ruptly to outdoor life. Stand the plants outside for a week or two if possible, to harden, before planting them out in the ground, and don't hurry the plants out of the greenhouse unless the weather is favorable, especially coleus and tender plants. Weather conditions, and not the calendar, must govern these and similar operations in the garden at all times, for often

"Undue haste brings woeful waste."

THE GREENHOUSE—Shading must be put on much heavier now than before for palms, ferns and similar plants. Palms, cordylines, etc., succeed best stood out of doors on the north side of a building during the hot summer months; stand on a piece of slate or shingle, this will prevent worms getting into the pot and choking the drainage. This applies to all plants stood outside.

Exotic ferns should be kept in the greenhouse during summer, keep them well watered and the floor well dampened. Tree ferns, especially the Australian varieties, do well stood outside during July and August, but they must have a well shaded, sheltered position, and an occasional spraying.

Top ventilators may perhaps be left open slightly at night if the weather is warm, it will help to harden off the bedding plants. The hardier class of bedding plants, such as geraniums, petunias, verbenas, etc., may be stood outside toward the end of the month, previous to being planted out later on. Coleus and tender plants are safer in the house for a week or so.

Hydrangeas, oleanders, and similar half-hardy plants may be stood outside. Water must be given liberally to all growing plants. Syringe in the afternoon, and close ventilators early, if the weather is cool; early afternoon syringing and closing keeps down red spider. Syringe lightly, heavy syringing damages the bloom, fancy pelargoniums being particularly opposed to syringing; these latter like a cool temperature and



FIG. 1811. CARNATION.

plenty of air, day and night if possible, and plenty of water at the roots.

Gloxinias and tuberous begonias should be well started by now, and when well rooted they will require plenty of water; shade well, but syringe them very seldom, if at all. A moist atmosphere, caused by damping the floors often, is better than syringing. Early morning is the best time for watering plants at this season of the year, late evening watering is not advisable just yet, as chilly nights, with oftentimes no fire heat, induces mildew, damping off and other evils, if late watering is indulged in.

Chrysanthemums in pots that are to be grown outside during summer, may be stood outside now; it may apparently check them some, but less growth is much better than weak, spindled growth, induced by a high temperature. These plants may have their final potting as early as possible into the pots they are to flower in; use a rich loam and pot firmly; if bushy plants are required pinch the tips of the shoots off every week or two until July.

Carnations may be planted outside in the borders early in June, or even earlier than that, if fall and winter flower is required;



FIG. 1812. PRIMULA OBCONICA.

pinch the tips of the long growth off, continue this pinching until July, you will have more bloom than if they are left to grow as they please.

Cuttings of young growth of *Aloysia citrodora* (lemon verbena) will strike readily if inserted in sand.

Shade fuchsias, and syringe them frequently; fuchsias succeed best stood outside in summer, on the north side of a fence or building.

Pot off seedling primulas and cyclamens singly in small pots; if the plants are very small and crowded, transplant them into shallow boxes or pans until high enough for potting; shade and give them plenty of air, especially the cyclamens.

Primula obconica makes a nice greenhouse plant.

Fancy caladiums should be started in sand, if they are not already under way; when roots and growth are about an inch in length, put them into well drained pots large enough for them to grow in all summer; put the bulb just under the surface of the soil, they require a light compost, equal parts loam, leaf soil and sand will suit them; water sparingly until well rooted, then water liberally. Keep them in the greenhouse all summer, they like heat, shade, and a

moist atmosphere. These caladiums are very beautiful plants when well grown.

Secure a plant or some cuttings of *Plumbago capensis*, its pretty lavender blue flowers, and its easy culture, make it one of our most desirable greenhouse plants; it will stand outside in a shaded position during summer.

The new begonia, *Haageana*, promises to be a useful addition to this beautiful class of plants.

Azaleas, Eupatoriums, and all hard wooded plants may be stood outside in June in partially shaded positions.

Genistas do better planted out in the open border.

Divide old plants of violets, and pot divisions into 4 or 5 inch pots, plunge pot and all outside in partial shade, and give plenty of water all summer.

The new violet, "Princess of Wales," is a grand acquisition to these sweetly perfumed favorites. The flower is very large,



FIG. 1813. BEGONIA, HAAGEANA.

has a long stem, is a deep rich blue in color, very fragrant, and a robust grower.

WINDOW PLANTS—If fuchsias commence to drop their leaves, red spider is likely causing the trouble; syringe the plants often; if these little pests are very numerous, take the plant, if not too large, turn it upside down and plunge the plant, not the pot, into a tub of clear cool water, hold it there a minute or two, as the red spider dislikes water, and repeat the process every few days if required. A few nice stocky geraniums well established in 4 inch pots may be potted into 6 inch pots, in good rich, loamy soil, plunge pot up to the rim outside in the open border in June; pinch the tips of the leading shoots out about every two weeks until July, and keep the flower stems closely picked off as soon as they appear until September, then let them flower; take them in before frost. By this method you will secure bushy plants and lots of flowers in autumn and winter. *Le Pilote*, scarlet; *Hermine*, white, and *Corinne*, double flowering bronze, are three good varieties. Fragrant geraniums succeed well treated in this way, the lemon scented variety being perhaps the best. The *East Lothian stock* makes a good window plant. A plant of

the perennial *tropeolum*, *Boule de Feu*, will make a grand climber for the window in summer or winter; give it rich soil, plenty of root room and water. This variety of the *tropeolum*, with its profuse and dazzling scarlet blossoms, makes a grand display in any place suitable for it to grow in. Cactus should be repotted if they require it, but don't overpot them; equal quantities of loam and sand, with plenty of drainage, suits these plants best; water them seldom, especially just after repotting. Calla lilies may be planted out in the garden in June in a slightly shaded position. Water all plants thoroughly when required, and on fine warm days.

FLOWER GARDEN—Finish forking up beds and borders and transplanting annuals, etc., from frames. Thrip, green fly, and the rose worm or grub, will soon commence their attacks on out-door roses, the two former can be kept down by an early application of tobacco water sprinkled on the plants, or spread some tobacco stems under the plants; if this is commenced early enough you can keep these pests in check. Hellebore powder, or a weak solution of Paris green water, applied once or twice about the time the first buds appear, will destroy the rose grub. Dutch and other bulbs that are out of flower may be taken from the beds, lay them in flat



FIG. 1815. SPIKE OF EAST
LOTHIAN STOCK.



FIG. 1814. TULIP.

shallow boxes mixed with a little soil, leave them out under a fence or trees until fall; look them over occasionally, as the wood lice are very partial to them, especially hyacinths. Commence bedding out geraniums and the hardiest of the plants about the end of the month, leave coleus, caladiums, and cannas a little longer. A bed of tea roses gives good results, especially on light soil; plant in June, get large plants if you can. Etoile de Lyon, Marion Dingee, and the profuse blooming dwarf Clothilde Soupert, for an edging, makes a good selection; if another variety and color is wanted, the little pink Hermosa will give grand results. Give water to beds early in the day at this season of the year.

FRUIT GARDEN—All planting except perhaps strawberries should be finished before this time. Keep the hoe and cultivator busy. Watch out for caterpillars on gooseberry bushes; dry Hellebore sprinkled lightly on the leaves early in the morning will destroy these voracious creatures. A weak solution of Paris green water is efficacious, this should not be applied after the currants are of any size. I find Bordeaux mixture

sticks to the fruit, and spoils the appearance of gooseberries and currants. Spray plum, pear and apple trees after the bloom has fallen with Bordeaux mixture.

VEGETABLE GARDEN—Onions transplanted from hot beds, and all growing crops, will require a light surface stirring of the soil; one hour's work now with the scuffle or Dutch hoe will save many times over the labor if left until later. The main crop of carrots and beets may be sown. The main crop of potatoes should be planted about the end of May. Plant second early cabbage—Henderson's Summer is a good variety for second early. Sow seeds of savoy and late cabbage and cauliflower early in May in the open ground. A late sowing of peas and beans may perhaps give you good results if the weather is favorable. Plant out leeks as soon as large enough, in shallow trenches prepared the same as for celery. Transplant small celery plants from seed beds or boxes into cold frames; shade and water them well.

Hamilton.

HORTUS.

NOTE.—It will be necessary to make some allowance for dates given, as this article is written for southern Ontario

EVERGREENS.

EVERGREENS are used for hedges, wind-breaks and for lawn purposes. Very few farms can be found which do not need wind-breaks, especially in winter. Those who do not feel able to plant rows to protect their fields should at least arrange to shelter their buildings. Hedges may be made to answer as fences and low wind-breaks. They are beautiful as well as useful. Norway spruce is largely used for wind-breaks and hedges; it is cheap and hardy. Arbor Vitae or white cedar is especially suitable for hedges; the

roots are fibrous and bear transplanting very well. Norway spruce and other evergreens can be handled with more ease and safety when small. This is true of trees and shrubs generally, but it will take years of patient teaching to get planters to generally act upon this idea.

Scotch pine grows with great rapidity and soon makes a wind-break or a large single specimen. Austrian pine is smaller; both have coarse strong needles as foliage. White spruce is a rapid grower and should be more used. Black Hills spruce is a slower grow-

er, forms a compact head, has a fine dark foliage, and will be largely planted wherever it is known. Colorado blue spruce is similar in growth, and its average colors are much finer than Norway spruce. Occasional samples possess what we call a very bright blue tint and are sold at higher prices.

The young growth of Douglas spruce is very pretty, and when established the trees are rampant growers. Concolor spruce is unique in appearance, its foliage looks strong but has a soft feel.

Colorado Blue, Concolor and Douglas spruces are hardy rocky mountain evergreens that have a bright future. Until recently they were high priced. At present they are quite within the reach of any one who has room for a few hardy novel and beautiful evergreens. A short wind-break of Douglas spruce should be a rapid growing novelty in most neighborhoods. The half hardy and rare evergreens are not noticed here.

For lawn purposes the sharp pyramidal

growth of the Irish and Swedish Juniper marks them as very ornamental. The Irish Juniper has a blue green tint in summer but turns brownish in winter. The Swedish Juniper has a peculiar light pea green tint which does not disappear in winter. When the rare beauty of this Juniper becomes known few persons who have room will be without it. The dwarf mountain pine forms a low spreading lawn tree; its foliage is dense, short and pretty.

All of the evergreens mentioned are hardy here. Some of them are somewhat scorched upon their windward sides during cold winters.

Shrubs and evergreens in the lawn as well as the cattle at the barns and the people in the houses will come through in better shape if wind-breaks are provided. Evergreens should be cultivated for a few years,—after that, if the limbs are all allowed to remain, they will commonly care for themselves.

Niagara Falls South.

E. MORDEN.

A CARNATION BED.

"Take the fond heart from its home and its hearth,
It will sing of the loved to the ends of the earth."



VERY poor old lady, living in an out-of-the-way corner of the world, all by herself, not long since was found tending her carnations for companionship and memorial of happier days in the far off fader-land. The cottage was old and dilapidated, but her bed of carnations was a rare sight. An old lady, bent and shrunken with age, hobbled to the gate near where these lovely flowers of every shade were joyously blooming.

"Yo lofes de pinks, ma'am?" she asked. "I never saw such beauties before," was my honest answer. "I lofes you for sayin' so, gute lady. De pinks are all old Gritchen hafe to make her happy now. She bese all alone, an' works out all de sor'ow of her

heart in de bed of lofly pinks. I gets hoon-gry to see them in winter. I puts straw an' carpet heavy to keep the roots warm troo de deep snow. In the spring dey be green and blooming soon, and make my heart glad until frost come again. Dey mind me of de fader-land, when old Gritchen was young, and gather the sweet carnation an' clove pink to fold in a clean handkerchief to carry to church with Wilhelm; now he be dead, and de gute frein of de fader-land say dey keep carnation on his grave. But in dis strange land nobody will put dem on Gritchen's grave." She gathered me a fine bunch, and I was loath to leave the poor old creature in her lonely exile. But I rejoiced that the sweet flower was filling its mission, in a sad and desolate heart. Let us do likewise if sad.

M. A. H.

THE DAHLIA.



FIG. 1816. MR. JOHN WILSON AMONG HIS DAHLIAS, NAPANEE.

Mr. John Wilson read an interesting paper before the Napanee society on this subject, showing how he had so successfully grown this flower. Mrs. Judge Wilkinson, the president, encloses a photo, showing Mr. Wilson among his favorites, and the following note :

The best bloom of the above photo was in September when one stalk, which grew to six feet, produced at one time fifty-three blossoms and buds ; another, the Queen, grew seven and a half feet high

and had blossoms five inches across. Mr. Wilson attributes this great success to good drainage, rich soil and plenty of water, and the following is his method of growing : He starts the roots as soon as possible after middle of March, in earth in a warm place, leaving from three to five bulbs attached ; when the ground is warm and danger of frost over he digs a trench eighteen inches deep, fills up ten inches with coal ashes, which prevents water accumulating about the roots, then puts over eight inches of soil, measures the trench off and puts in firm stakes three feet apart ; he makes a hole with a spade and puts in layers of well rotted manure, earth and wood ashes, about three handfuls of the latter to a hole and they must not come in contact with the bulbs, puts in started bulbs so that the highest bulb will be covered about an inch ; too deep planting, the ground is too cold ; lets all shoots grow until they are about five inches high, then removes all but the best one and ties it to the stake, when it will branch out like a sunflower. The trench need not be made, just the holes, but the drainage will not be so perfect.

PRIMULA OBCONICA. —I think that if I could have but one plant for the house it would be *Primula obconica*. It seems to have all the virtues, and I do not know of an objection. It is neat in habit of growth, the foliage is a rich dark green, and no insect foes attack it, so far as my experience goes. The flowers are peculiarly dainty, a little smaller than the Chinese primrose, about the size of a Phlox blossom, with notch in the centre of each petal. They are borne crown-like on slender stems, a dozen or more in a cluster, about four or five inches

above the leaves. The color is an exquisite pale lavender, changing to white, and the flowers have a delicate perfume. I have a plant which has been in blossom for nearly a year, sometimes having a half dozen flower stalks in bloom at once. It is valuable for cutting, as the flowers last a long time and the buds continue to open ; the long stems make it capable of use for decoration in many ways. It likes a rich soil made light with sand, and good drainage. Give it a moderate amount of water and not too much sunshine.—*Vick's Magazine*.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE photographs illustrating our article regarding Mr. Thos. Beall and his home, were made by Mr. Herbert Beall, his grandson.

NOVA SCOTIA AND NEW BRUNSWICK are to unite in founding a first-class Agricultural College.

MRS. ELEANOR A. ORMEROD, the celebrated English Entomologist, whose reports have been so highly appreciated by the public, both in Europe and America, has been given the degree of L. L. D. by Edinburgh University.

A GOOD WINTER RUSSIAN APPLE.—Mrs. Dr. Hoskins sends a sample from a scion top grafted in the doctor's orchard. It has the appearance of being a valuable winter Russian, being above average size and of a beautiful color.

MR. BACON, of Orillia, who was sent out by our association to lecture before quite a number of our societies, writes: "The societies are broadening out beyond individual

benefit in their connection with your association. Nearly every society which I have visited has made a decided advance."

WHALE OIL SOAP has been quite effectually tried in Illinois for the destruction of San Jose scale. It is estimated that 99 per cent. of the San Jose scale in one orchard in which a large number of trees were sprayed was killed by two successive sprayings with whale-oil soap in the fall of 1896 and in the spring of 1897.

IMPORTATION OF NURSERY STOCK.—A bill has been recently passed by the Minister of Agriculture for the Dominion providing for the importation of nursery stock in the month of April, under the restriction of its being fumigated properly at the port of entry. Fumigation houses are immediately to be provided for this purpose.

COLD STORAGE.—The Hon. F. R. Latchford, Minister of Public Works, gave a very

instructive talk on cold storage houses of small cost for the fruit grower, at Grimsby, on Friday, April 6th. A large number of fruit growers were present and all felt convinced that Mr. Latchford thoroughly understood the underlying principles of cold storage.

GILLET'S LYE advertised in these pages is especially commended for use in spraying trees to clean them of fungi and insects. The proportion advised is one package to five gallons of water, but how much a package weighs we are not told. If an article like this would answer the purpose of whale oil soap, which is made of caustic potash and fish oil, it would be more convenient to apply, but this is a question. Probably it would be useful in clearing the cherry trees of the aphids at any rate, and perhaps be a good preparation for routing the oyster shell bark louse.

THE ONTARIO FRUIT GROWERS' ASSOCIATION is sending Mr. Wm. M. Orr, President, a delegate to Ottawa to interview the Minister of Agriculture regarding affording the fruit growers of the province generally better facilities for transporting their pears, peaches and early apples to Great Britain in cold storage. The difficulty is to get proper temperature guaranteed, and until this is afforded none of us can ship with confidence. Another object is to unite with other Associations in asking that the Toronto Industrial Fair be made a Dominion Exhibition in 1901, thus attracting large numbers of the visitors to the Pan American.

JOHN RUSKIN. — Who, among us, that has read *Sesame and Lilies* but has felt a friend's departure in the news of the death of John Ruskin. The Garden thus makes the announcement :

John Ruskin, poet, teacher, reformer and philosopher died at his charming home, Brantwood, Coniston, on Saturday last, in the eighty-first

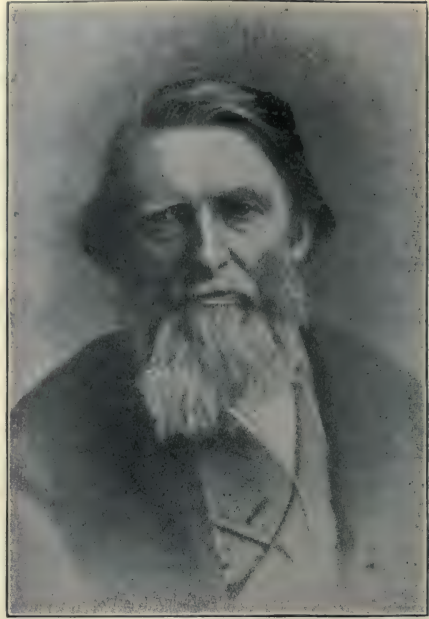


FIG. 1817. THE LATE JOHN RUSKIN.

year of his age. Ruskin strived to reach the high ideals preached in his noble moral essays—earnest messages to the world and master-pieces of English prose. His famous works "*Modern Painters*," "*Stones of Venice*," "*Seven Lamps of Architecture*," "*Fors Clavigera*," "*Unto this Last*," and "*Sesame and Lilies*" are amongst the greatest contributions to the literature of this century. On Thursday, in the churchyard of Coniston, Ruskin was laid to rest, in the beautiful country he loved so well. It was his wish, that if his death occurred in London, to be buried with his father and mother in the churchyard of Shirley, near Croydon, the village of which the Rev. W. Wilks is vicar.

Leaving to others to do justice if they can to Ruskin's genius and its ennobling influence on horticulture as a fine art will you permit me under a deep sense of his sudden loss, to cull a sentence or two from the appreciative notice from the *Scotsman* of Monday on Ruskin's influence on art:—"In his day Ruskin did more for British art than any other man had done. When his first book appeared, British art and taste were fast bound in the traditions of a poor and vulgar conventionalism. It was in much the same condition as poetry had fallen into at an earlier date, and from which it was raised by Coleridge, Scott, and the other great poets of the romantic revival.

"Ruskin led the revival into the realm of art. He woke the nation into a new and finer sense, and a sense of the true and beautiful in form and color. He shook the national taste out of its bondage, purged it of vulgarity, and taught it to see and appreciate the beautiful. The revolution

of taste that has taken place in the last fifty years has not been wholly his work, but he began it, and even those who now refuse to acknowledge him a master, are the fruits of the stimulus which he gave to the love of art and the sense of beauty.

"The great distinction of all Ruskin's writings is their sincerity, or may be called originality. He drew inspiration from men and books, but he gave us no second-hand work. He describes for us what he has seen with his own eyes—never through the eyes of another."

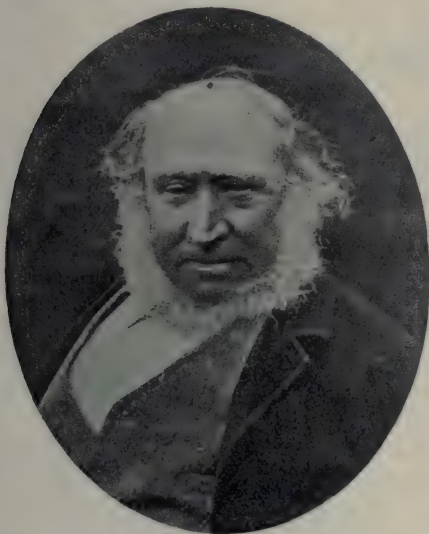


FIG. 1818. R. D. BLACKMORE.

R. D. BLACKMORE.—The Garden also fittingly announces the death of this writer, so popular with us in Canada, that we take the privilege of the extract, of course giving due credit :

This writer of delightful romances—a writer who has told us of the beautiful Devonshire scenery and its flowers in his tale of "Lorna Doone"—passed away on Saturday last at his Teddington home. The English-speaking world is poorer for the loss of this gifted and interesting man, who hid himself from the world and its gaiety in his garden at Teddington, where he cultivated fruits enthusiastically for many years. Pear culture was his favorite hobby, and his assistance for many years as a member (then as chairman) of the fruit committee of the Royal Horticultural Society was of importance. We remember with pleasure Mr. Blackmore's paper upon Vine pests delivered some years ago at a conference, under the auspices of the Royal Horticultural Society, a paper of practical value, brimful of humor and revealing a deep knowledge of the subject. Lovers of gardens, of scenery, and of healthy literature should read Mr. Blackmore's novels, "Lorna Doone," "Cradock Nowell," and

"Perlycross" being among his most interesting productions. Mr. Blackmore was born at Longworth, in Berks, about seventy-five years ago, was educated at Blundell's School Tiverton, and from thence passed to Oxford and to the Bar. "Lorna Doone" shared the fate of many novels as brilliant; it failed to find a publisher until long after it had been written. It is said that eighteen publishers rejected the work, and when it appeared it received scant attention from reviewer and public. Mr. Blackmore attributed the ultimate success of his best known work to the fact that the marriage of Princess Louise to the Marquis of Lorne gave rise to the supposition that the novel was in some way connected with the "Lorne" family. Editions quickly appeared. The public were satisfied, too. If Lorne had nothing in common with Lorna, they agreed the writer had given to the world a brilliant romance. About ten years after its first publication Messrs. Sampson, Low, Marston and Co. issued the 22nd edition. It is not too much to say that Lynton and Minehead were made famous by this novel of the land of the Doones. Mr. Blackmore was a thorough lover of the open air, and besides a keen gardener was a good shot and trout fisherman. Of late years we have missed his familiar face at the meetings of the Royal Horticultural Society, due not to a lessened interest in flowers and fruit, but to failing health.

Mr. Blackmore, we believe, was not offended when described as a "market gardener," and used this *nom de plume* to one of his works. He was an enthusiast, and his produce from the many acres cultivated at Teddington found its way to Covent Garden, but he confessed once to the writer that Pear culture was not all profit.

The Chronicle (England) says :

R. D. BLACKMORE was a good cultivator and a practical man; we have seen him pruning his own vines and fruit-trees. When fruit-growers were being lectured upon the necessity of selecting the best fruits only, of taking great pains with packing and other details of marketing, Blackmore once drew us aside with a curious smile to show us that what was being recommended was just what he had been doing for years. In these particulars he was like Thomas Rivers, who, however, was not so lenient to those who were presumptuous enough to think they could teach him how to grow fruit-trees. There is one trait in our friend's character that has not been alluded to, though the reader has but to look at his genial portrait to see that a keen sense of humor was one of his most prominent characteristics. Those who were present at a certain conference on vine diseases held at Chiswick some years ago, will remember the rich, rollicking humor with which he described a certain disease whose nature at that time was unknown. The way in which he criticised the plant doctors with an imperturbable countenance, was one of the richest bits of fun we ever remember. Unfortunately the critic was no better but rather worse informed, but everyone enjoyed the fun nevertheless. Another characteristic of our lamented friend was his generosity. Several instances of

this came under our notice. He could not say "No" when pain, or poverty, or distress appealed to him. It is possible his want of success as a business man may in a measure be attributed to this. Twice within our recollection the wagons in his yard were loaded and about to start for market, when a poor, broken-hearted man, whose

wife was dying of consumption, came and pleaded for some strawberries, which were then at a high price. The man went off with the strawberries, telling the writer of these lines that he felt ashamed to ask such a favour from Mr. Blackmore, as he had so often received similar kindnesses.

QUESTION DRAWER.

Best Fertilizers for Orchard.

1147. SIR,—Have been using barnyard manure for years on my orchard, but supply cannot readily be got now, so will have to get something to take its place. Saw sometime ago, in the *Globe* I think, an advertisement of Bradley's Fertilizers, and took a memo at the time. The kinds specified were Niagara phosphate, guano, dissolved bone with potash, and fruit and vine fertilizer. Could you give me a practical opinion as to whether these articles are *reliable*, and also if so, which kind would answer best for pears and apples on clay soil. As you well know it is of the utmost importance to us fruit growers that orchards should be fed well, and I do not wish to spend money on an article that will not give the best results. If these goods are not the best, kindly let me know where and what to get.

Owen Sound.

W. B. STEPHENS.

As far as I am aware, the Bradley Fertilizers are reliable; that is, the results of their analysis, as made by the Government chemist, agree very well with the percentages of phosphoric acid, potash, and nitrogen guaranteed by the manufacturer.

The composition of the brands mentioned by your correspondent is as follows:

	Nitrogen, Calculated as Ammonia.	Phos. Acid.	Pot- ash.
1. Niagara phosphate	1.00	8.00	1.08
2. Seafowl guano	2.50	10.00	1.50
3. Dissolved bone with pot- ash	1.00	10.00	2.15
4. Fruit and vine fertilizer.	2.5	10.00	5.40

For orchard application, I should expect the best results from either Nos. 3 or 4; the price per ton would naturally be a factor in deciding which brand would be the more profitable to employ.

Since this orchard is not receiving barnyard manure, and the soil is a clay, it occurs to me that the turning under of a crop

of clover might be beneficial. If sown early in July, an excellent stand will be obtained, if the season is at all favorable, by the end of the season—say, October—when it may be ploughed under, or, if thought best, left as a cover crop during the winter and turned under early in the spring. This plan is a very economical and effective one for enriching the soil in nitrogen and humus. It is doubtful, if such a method were pursued, whether it would be necessary to purchase nitrogen in the form of a commercial fertilizer.

FRANK T. SHUTT.

Chemist, C. E. F., Ottawa.

P. S.—Those proposing purchasing commercial fertilizers should peruse the Bulletin issued by the Inland Revenue Department, Ottawa, which states the composition of all fertilizers sold in Canada.

Raspberry Cane Borer.

1148. SIR,—For a couple of summers a pest has been destroying great numbers of my black raspberry canes, completely killing out some hills. When the young cane is about six inches or a foot in height, some insect deposits an egg in the tender part of the cane. The egg becomes a little white maggot, which eats its way downward about an inch and a half, then eats around the cane, inside the shell, and finally nestles itself there. Thereupon the part of the cane above the maggot wilts and droops over. If the cane be broken off just at the bottom of the wilted part, the maggot will be found.

Please name and describe the parent insect in your next number of the *Canadian Horticulturist*, and tell us the best way to prevent its ravages.

Hespeler.

H. J. BROWNLEE.

The insect which deposits the egg referred to is the Raspberry Cane Borer (*Oberea bi maculata*). The perfect insect is a long horned beetle which flies during the month of June, and in oviposition the female girdles the cane both above and below the place, and the part of the stem above soon droops and withers. The young larva burrows down the centre of the stem, and in the autumn changes into pupa form, remaining in the stem during the winter and escaping the following June. It is not usually sufficiently numerous to effect much mischief, and should be easily kept in check by cutting off and burning all infested canes.



FIG. 1819. BANANA.

The Banana

1149. Give me what information you can about growing the Banana plant.
Orangeville.

SUBSCRIBER.

There are several varieties of the Musa or Banana family. The varieties that are probably best known to horticulturists for greenhouse culture are Musa Cavendishii, of Chinese origin, and Musa ensete from Abyssinia; the latter variety grows readily from seed and makes a nice decorative plant. All of the Musa family require a greenhouse to grow them successfully; they like a rich,

light soil, plenty of heat and moisture in summer, and plenty of root room to grow in. In winter they require much less water, but the temperature should never be lower than 55 degrees, even at night, to be successful with them.

Musa Cavendishii fruits readily when three or four years old when grown under favorable conditions. It is generally propagated from offsets or suckers that grow up around the old stem, these suckers can be taken off when repotting, and grown on in pots for a year or more, when in spring they can be put into a large tub two feet or more in diameter, and proportionately deep, and if grown in rich soil and given plenty of heat, shade and moisture in summer, with less heat and water in winter, will probably fruit in two or three years. Shortly after fruiting the old stem dies down, so it is necessary to secure young plants as before described. A good specimen will grow from six to eight feet in height, and when well grown has a beautiful tropical appearance.

The Musa are not desirable plants for lawn decoration in summer, unless they can be given a well sheltered and shaded position, as the foliage is light in texture and liable to be torn and broken by storms. The Musa ensete is probably the best variety to stand outside in summer for decorative purposes.

Hamilton.

W. HUNT.

Areca Lutescens.

1150. SIR,—I should be glad if you could tell me in an early number what is the reason that a palm does not open its leaves and sends up a plain straight spike. I have a number of palms which are all right, but I have one "Areca Lutescens" which has acquired this habit.

JOHN A. ROBERTSON.

Chateauquay Basin, Que.

The habit of the palm, Areca lutescens, as described in above question, is perfectly natural; in fact there are but comparatively few varieties, common to greenhouse culture, that develop their foliage otherwise than by means of this leaf blade or spike. Among

the few exceptions in this particular are the *Cycas* family of palms—a photo of one of these, *Cycas revoluta*, can be seen in the November number, 1899, of *The Horticulturist*, which shows the difference in habit; the leaves of the *Cycas* developing from the crown of the plant, somewhat similar to the development of the fronds of many species of ferns, notably the Tree Ferns, instead of from the leaf blade as in the case of the *Areca* family of palms.

The *Caryota*, *Seaforthia* or *Ptychosperma* palms, amongst others, develop their leaves by means of a leaf blade that often attains a length of five or six feet before commencing to open, this habit being more noticeable in these larger growing species than in some of the smaller species, and as the plants attain to a greater age this peculiarity is still more noticeable than in younger plants.

The plant mentioned in the question will doubtless develop the side segments of the leaf blade in due time if the plant is healthy; heat and moisture, especially syringing, will greatly assist the development of the leaf, but do not attempt to hurry the process in any other way. I consider the gradual development of the leaves of those mentioned, and similar species of palms, to be one of their most pleasing and attractive features, as the network of brown fibry filament that adheres to and connects the numerous terminal segments of the leaves with each other, until the whole leaf is fully developed, gives the plant a beautiful and unique appearance, and gives pleasure and delight to those who study the wonderful construction and growth of these useful and ornamental plants.

Hamilton.

W. HUNT.

Orchard on Limestone Ridge.

1151. SIR,—We are the owners of a farm lying towards the northern portion of the County of Huron, Ont., through the centre of which runs a limestone gravel ridge, elevation being somewhat above the other parts of the property. On this ridge the soil is shallow, so much so that it would not pay for the cultivation of other crops upon it. This part of the farm is grown over with a thick

coat of wire or June grass. We are just now considering the question of planting ten acres of this ridge to winter apples. We have been advised to summer fallow this the first season, then the following spring plant trees forty feet apart each way, and cultivate by ploughing under pease or some green crop for a season or two. The trees to be of the Talman Sweet variety, and when two or three years old, graft on three or four of the best winter fruit varieties. Your opinion would be regarded as valuable as to the soil mentioned: cultivation, planting, grafting and staking; also the names of three or four of the best winter varieties of apples adapted to this section, or any suggestion from you would be appreciated by us.

"AMATEUR."

We have no experience in planting apple trees on a limestone ridge, in shallow soil, but would fear two difficulties: First, that the trees would suffer from drouth and become stunted, and second, that the soil would lack fertility. If, however, these two difficulties can be overcome, possible success might result. The advice given our correspondent regarding treatment of the soil is good, and the Talman Sweet is a first-class stock for top grafting. In planting we would advise drawing as much good soil, with as large a proportion of humus as possible, and use it to fill in about the trees; cultivate thoroughly every year, either adding manure, or ploughing in clover or some such crop, and thus the best conditions will be afforded.

Some good winter varieties of apples are Ontario, Wealthy, York Imperial, Ben Davis, Pewaukee and Canada Red.

Best Single Geraniums.

1152. SIR,—Will you be kind enough to give me the names of the six (6) best single geraniums for bedding out. I refer to those having the largest stems and trusses. You can send the answer through the *Horticulturist*, if you wish.

C. HIRSCHMILLER.

23 Simcoe W., Hamilton, Ont.

We have been testing over 260 varieties of geraniums at the College, and where there are so many excellent varieties to choose from, it is difficult to narrow the list down to half a dozen. Among the scarlet varieties there is a great range for choice, while among the whites the really first class

varieties are comparatively few. I give below two lists of which includes quite a range of colors. Those in the first are single and many of them are new. Those in the second are double or semi-double, and most of them are well known standards that have not yet been surpassed :

- 1.—M. A. Boulaus, rich crimson-scarlet.
W. A. Chalfant, bright scarlet.
Mrs. A. Blanc, salmon.

Mrs. E. G. Hill, salmon-pink.
Madonna, delicate soft pink.
Snowdrop, dwarf, pure white.

- 2.—J. J. Harrison, bright scarlet.
Gen. Grant, orange scarlet.
S. A. Nutt, dark crimson.
Adrien Corret, magenta crimson.
Mons. de la Rue, pink.
La Favorite, pure white.

Open Letters.

Fruit in New York Market.

SIR,—Late in December I purchased three California Winter Nelis pears, that weighed a little more than $2\frac{1}{2}$ lbs., for thirty cents. On the same fruit stand there were more than forty pears of the same variety equally large and fine. The quality was best, and they were free from defects. I never supposed Winter Nelis could be grown so large. In January I secured two Easter Beurre pears that weighed one full pound each for thirty cents, and the dealer had many more equally fine and large. I have eaten smaller pears of the same variety, of better quality. Nevertheless, they were delicious. I found some prime specimens of P. Barry to-day at 10 and $12\frac{1}{2}$ cents each. For the latter half of this month, and March and April, the P. Barry pears and unsurpassed. They reach here carefully packed in prime condition, as hard as stones, and go into cold storage until the market is ready for them. Prime strawberries from the South to-day bring 40 cents per basket. They are large pints or small quarts. They are in *perfect condition*. Beautiful and perfect heads of Cauliflower, 12 to 15 inches in diameter, are in market. When Cuban prosperity is restored, we shall have fresh vegetables and fruits from that island in January and February, and from Bermuda in March and April, and from our Southern States in May and June. Freights by steam vessels from Cuba will be low, and with cold storage such products can reach us in fine condition, and sell at moderate prices. Late strawberries, raspberries, blackcaps, blackberries and currants will command better prices than early fruits grown in this section. We have had a fair supply of handsome apples, but few of fine brisk subacid flavor, such as can be grown in Ontario. I have purchased fine large and fair Greenings, Spitzenburgs, Bell-flowers and Golden Russets, and then thrown them into the gutter after tasting them they were so insipid.

Brooklyn.

FRANCIS WAYLAND GLEN.

Dishonest Packing.

SIR,—We see by Canadian Grocer that you and Mr. Orr called on the Minister of Agriculture to endeavor to find some means to put a stop to dishonest packing of fruit, especially of apples for exportation. Our canning factory here has had a great amount of trouble this year when opening a barrel that was bought as Spys or Baldwins to find them sweet apples or poor little cider apples, of no use whatever, and all other fruits to a certain extent are not properly graded and labeled.

We are of opinion, as we wrote you in December last, that the only way to stop this rascality is by Act of Parliament, making it compulsory when fruit is sold that it be properly labeled with the growers' name, number of lot, township and county; in case he did not pack it himself, the man's name who did pack it; in case he sold to a dealer, then the dealer's name. The grower or dealer to become personally liable for damages, and every one connected with the packing to be criminally liable for committing a fraud and be punished by fine or imprisonment or both.

We have never seen the rules for grading as made by your Fruit Growers' Association. Would like very much to have them.

We will be ready to assist all we can at any time to further the purpose about which we are writing

Waterford.

BOWLBY BROS.

A New and Valuable Forage Plant.

Capt. E. A. Wilson in January Horticulturist recommends a Desmodium or Beggar Weed. Would Capt. Wilson kindly give the specific name, as there are about eighteen species of Desmodium in the United States and about nine in this province? I have found seven species growing within a mile of my home, in light, sandy soil. Desmodium Candense or Tick Trefoil is the most likely species as a forage plant; it grows about from four to six feet high. I have noticed

cattle eat this species quite readily, belonging to Leguminosae, belonging to a large, useful class of plants. Clover, vetch and peas are included in this family. If you carelessly run up against a plant in seed enough of seed pods will adhere to your clothing to sow a good sized garden. This species is quite a good garden herbaceous plant. The flowers are purple and much larger than any other species.

The roots are very wiry; I should think it would be very difficult to plow under if well established. I have grown this plant for quite a number of years. What attraction this plant had for visitors I cannot tell, but they were sure to find it out to their sorrow. A. GILCHRIST.

The Plant Distribution.

SIR,—I am much pleased that the plant distribution is still continued as we consider the plants received worth half the price of the Horticulturist, and would sooner pay something extra than have them discontinued. The raspberry of 1897 distribution was so laden with berries last year that the branches hung to the ground with the weight of them. The Crimson Rambler of the year following had one cluster of eleven roses last summer, each rose perfect, and the first in bloom remained until the last bud opened two weeks later.

Toronto.

MRS. T. P. IVENS.

Fraud in Fruit.

SIR,—I have just been reading the report of the Annual Meeting, and I think the Association deserves small credit for leaving the Fraud in Fruit question at fairs in such an unfinished state. To me it seems that a fair is more for the encouraging of fruit growing and the educating of the growers than to display to the public what can be grown, though this is a great object, so that the encouraging or allowing of this professional exhibitor is a fraud and an injustice to the grower. Now, I think the only way to knock out this gentleman is for the district branches to take his place. It is their duty to gather up all the best produce in the dis-

trict and exhibit at the provincial fair, so that district may compete against district and province against province. In this way we would learn which district or province could produce the best of any kind of fruit, and what variety of that kind was most suitable. All care should be taken to give the exhibitors confidence of justice, for the best class of exhibitor does not complain, only he does not compete again

Vernon, B.C.

THISTLE BURR.

Dishonest Packing.

SIR,—I must confess to a great degree of disappointment that your amending reading of Sec. 3 of the Government fruit inspection regulations proposed by the Whitby growers in session assembled should so easily satisfy you.

Although a little better than the original draft, perhaps, it will, in my humble opinion, utterly fail to remedy this crying evil.

If, as claimed in my published article in your March number, "an ounce of prevention" for the obvious reasons pointed out is worth *far more* than a "pound of cure," how much can the "mouse," which, after much labor the "mountain" of Whitby growers has brought forth, be expected to accomplish?

Everybody in this "Empire days" of which we are all so justly proud is expected to display a flag; would it not also be a fitting time for loyal orchardists to raise a war standard of their own? May I offer a design? If so, here it is for consideration while waiting for a better one: A spray of apple blossoms in each corner, a fine cluster of apples in the centre, and surrounding the latter in a large upper half circle this motto: "CONFISCATION AND PUBLICATION FOR DISHONEST PACKERS."

That the principle upon which this sentiment depends will eventually animate the large majority of the apple growers of the Dominion in their legitimate and proper demand for efficient Government inspection is my firm belief.

Yours truly,

Danville, P. Q.

GEO. O. GOODHUE.

Our Affiliated Societies.

GODERICH.—At a meeting of this society Mr. W. Warnock read a paper on "Man's duty to discover and improve trees and plants good for food or for ornament.

WOODSTOCK.—Mr. Bacon's lecture was highly appreciated. Too little attention has been given to growing flowers by amateurs about Woodstock, except by the few, as for example Mayor Scarff, and a few others.

ORANGEVILLE.—Notwithstanding counter attractions a good audience was present on Friday evening, the 30th, to hear Mr. Bacon's lecture on

bulbs and bulbous plants. The Orangeville orchestra contributed some splendid musical selections.

HAMILTON.—The Hamilton Horticultural Society is about to distribute several hundreds of potted plants among the children of the public and separate schools. A card with detailed cultural directions will accompany each specimen and premiums (not money) will be awarded for best grown specimens in the fall.

STIRLING.—Mrs. Jas. Boldrick was again elected president at the annual meeting. Her address

at this meeting, and also the address from the 1st vice-president, was printed in full in the *Stirling Argus*. Prof. Macoun's lecture on climbing vines and perennials on Monday evening was very entertaining and instructive. Music was furnished by the *Stirling band*.

KINCARDINE.—The secretary sends us their circular giving the members a choice of ten collections and offering any member any of the other collections at wholesale cost. Children are encouraged by the "Flower League" to join that department, each paying 10 cents and receiving the "Flower League" premium collection. Cut flowers and plants grown from this collection will form one of the most interesting parts of the Annual Horticultural Exhibition.

NAPANEE.—The town hall was filled to the doors to hear Prof. Macoun, of the Central Experimental Farm, Ottawa, give an address on horticulture. Mr. T. M. Henry, chairman, in his introduction spoke of the benefit the society had been to the town in the way of beautifying the homes and increasing public interest in floriculture in the formation of a public park. There was an interesting musical programme, which was highly appreciated. There was also a question drawer at the close of the lecture.

CARDINAL.—Sir: In re lecture on "Flowers for a Small Garden," by Mr. R. B. White, of Ottawa, held in the town hall here on Tuesday evening, the 30th, it was a very satisfactory lecture on both sides. The audience had many little details explained and questions answered, and the lecturer remarked that it was the best audience he had had yet, and as we are next to last on his list it is pleasant to think that the Cardinal society can more than hold its own against the towns in receiving a lecturer.

E. E. GILBERT.

PORT HOPE.—Professor Macoun gave last evening in the town hall a very interesting talk about flowers. He strongly recommended the more general planting of perennials, as in his opinion they gave the best average results. He exhibited dried specimens of those which had proved hardy at the Experimental Farm at Ottawa, which added much to the interest of the meeting. A vote of thanks was moved by J. Smart, Esq., vice-president, and seconded by Judge Benson, which the chairman, H. H. Burham, president, tendered to the professor, hoping we should hear him again on some future occasion.

OWEN SOUND.—On the evening of the 13th March we had our visit from Mr. Wm Bacon, lecturer from the Ontario Fruit Growers' Association. Questions were freely asked and answered. One was: Why the Easter Lilies were so unsatisfactory of late? The lecturer attributed the failure to deterioration of the bulbs. He advised that we cease purchasing for a time until the growers find the importance of growing better stock. In reply to a question about house plants he said it was necessary to have lots of fresh air, good soil, a sharp knife, hard heart and a little patience, and with these success was sure to come. Dr. Cam-

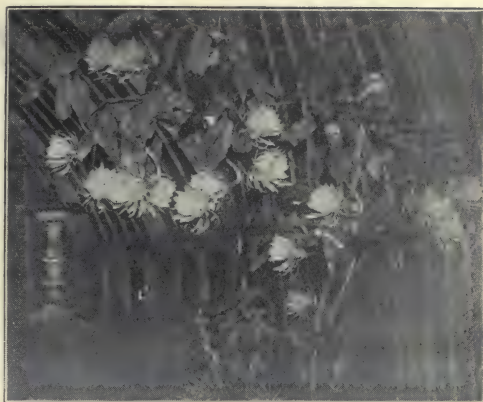


FIG. 1820. CRAB CACTUS, GROWN BY R. JENNINGS, BRAMPTON.

eron, the chairman, emphasized the wonderful effects of flowers in the sickroom, and advised that they be more often sent to houses of the poor in time of sickness.

PARIS.—On Thursday evening, 22nd March, we were greatly favored by a lecture from Mr. Wm. Bacon, of Orillia, on the subject, "The Bulbous Family," presented in a popular manner. The hall was well filled with an enthusiastic and appreciative audience, the more so as our society has included bulbs in its free distribution this year. Mr. Bacon's lecture was one of the best that has ever been given in Paris under the auspices of this society.

Our society is only entering its second year but with increased vigor, not so much in numbers as in enthusiasm, and we look forward to a prosperous year.

GORDON J. SMITH, Sec'y.

BRAMPTON.—Mr. Burrell, of St. Catharines, delivered a lecture on "Flowers in the Home" on the 5th March, in Haines hall, and although the night was a very boisterous one, between thirty and forty of our association were present and were deeply interested in the lucid and educational manner in which the lecture was delivered. Dr. French our 1st vice-president, on the violin and Miss Alice Treadgold on the piano gave several selections during the evening. Many questions were asked and answered. A pleasant feature of the evening was the production of two photographic pictures by one of our esteemed members, the manager of the Merchants Bank, W. C. Young. "The Azalea Indica," raised by Mr. Richard Jennings, florist, one of our society; the other is the "Night Blooming Cereus," grown in the conservatory of Mr. W. C. Young. The picture does not show all the flowers out at the time the photo was taken, and about three weeks previously about fourteen blooms were out. If our societies have any photographers in their membership I am sure the general members would be pleased to see cuts of plants, etc., in *The Horticulturist*. I en-



FIG. 1821. AZALEA INDICA, GROWN BY
R. JENNINGS, BRAMPTON.

close photos of the two plants and shall be pleased if you will give them space in your next issue.

HENRY ROBERTS, Sec'y.

TORONTO JUNCTION.—The Verandah and its Environs was the subject of Mr. Bacon's lecture before our society on Wednesday, the 28th March. He advised that a deep layer of good rich soil be placed around the verandah for honeysuckles, crimson ramblers, bitter sweet, jessamine, clematis, etc. Hanging baskets, he thought a necessary adjunct to the verandah, and such plants as the lobelia, the German ivy and other trailing plants, surmounted in the centre by a striking geranium, proved very effective. Instead of bringing plants out of the house and distributing them over the verandah, he suggested that cannas, in groups of half a dozen, should be

placed in large pots to give foliage, color and a tropical tinge. Palms and hydrangeas were also effective. Instead of beds, earthenware or rustic vases were recommended for the lawn on each side of the steps. These, containing vincas, the German ivy, the old Madeira vine, together with bright flowers, took up little room and would not deface the lawn.

MITCHELL.—The first public meeting under the auspices of the Mitchell Horticultural Society was held in the town hall on Friday evening, March 16th. For the first meeting of the kind there was a good attendance, and the audience evinced a keen interest in the proceedings and especially in the practical talk by Mr. Wm. Bacon, of Orillia. The management of the Ontario Association made no mistake in securing Mr. Bacon for this lecture work, for he is doing it well and his audiences are showing their appreciation by the attentive hearing they are giving him and the freedom with which they ply him with questions. The chair was occupied by Vice-President W. Elliot, B. A., the president, Dr. Smith, having been called out. T. H. Race first explained the purposes for which the society was organized, its aim and objects and the benefits to be gained through its privileges and its operations. One thing noticeable about the audience was that all the clergymen of the town were present, and at the close of Mr. Bacon's very practical and instructive address a vote of thanks in appreciative and complimentary language was proposed to him by Rev. M. Kenner, of the Methodist church, heartily seconded by Rev. Mr. Kerrin, of the Anglican church. The hall was nicely decorated with plants in bloom from the greenhouses of Mr. C. E. Skinner, and the object lesson was as pleasing as the talk of Mr. Bacon was instructive. The society has now over sixty members and the number promises to increase during the year. T. H. RACE, Sec.

OUR BOOK TABLE.

ANNUAL REPORT of The Fruit Growers' Association of P. E. I., 1900, annual meeting held at Charlottetown, Jan. 24, 1900. Secretary, Peter McCourt, Charlottetown. This is the record of the fourth annual meeting, and though scarcely fifty pages, it is a most creditable report, showing that this association, though young in years, is yet accomplishing work which might do credit to an organization of ripe years.

PRIZE LIST of the Great Northwestern Exhibition to be held in Goderich, Sept. 26, 7, 8, 1899.

THE AMATEUR'S PRACTICAL GARDEN BOOK, containing the simplest directions for the growing of the commonest things about the house and garden, by C. E. Hunn and L. H. Bailey. Published by the McMillan Co., New York, 1900. Price, \$2.00.

THE WESTERN NEW YORK HORTICULTURAL SOCIETY—Proceedings of the 45th annual meeting, held at Rochester, N. Y., Jan. 24th and 25th, 1900. John Hall, Rochester, Secretary. This volume is full of practical interest to the most advanced fruit growers of North America, and is well worth the \$1.00 membership fee in return for which it is sent out.

This is a most convenient and useful volume of 250 pages; just what every amateur flower grower needs to have at his elbow for ready reference, to help him out of his difficulties and furnish needed information. It is a sort of Encyclopedia in a nutshell, having the names of plants alphabetically arranged, with brief description, treatment, etc. We commend this book to those who do not wish to invest in a larger or more expensive work.





FIG. 1822. EARLY VICTOR.

THE CANADIAN HORTICULTURIST

Vol 23

1900

No 6

** JUNE **

THE EARLY VICTOR GRAPE.

OF the one hundred and fifty varieties of grapes in our collection, there is no black grape which seems more worthy of notice than the Early Victor. After trying for years to satisfy himself that it was right to hoax the buyer with Champion, which has so nearly ruined the market for early black grapes, it is a real comfort to the fruit grower to find a grape that is about as early in ripening, and, at the same time, of really good quality.

We notice that it colors very early, fully two weeks ahead of Concord, and is fit to gather about ten days before, along with Hartford and Moore's Early. Watts, of the Tennessee Experiment Station, says of it, "A superior early black grape, valuable in the home collection. Moore's Early is more profitable for market." Campbell, of Ohio, said of it, "I know of no black grape so well fitted to take the place of all foxy abominations (Champion, Ives, Hartford, Janesville) which have been tolerated on account of their earliness.

"I am glad to recognize in this variety a really good, very early black grape, with a vine evidently of the healthiest and hardiest type of the Labrusca class."

The Early Victor was originated by John Burr, of Leavenworth, Kansas, in 1870. He was an advocate of natural fertilization, believing that nature selected, under the environment, the pollen most congenial to perpetuate its species. He planted in his garden Catawba, Bland, Isabella, Hartford, Delaware, Concord, Salem and Goethe, and permitted no others to grow near enough to pollenise them. First he selected the Concord, taking the seed from the finest bunches, but after trying seedlings from it and from Isabella, Hartford and others of the distinctly Labrusca type, he selected seeds from the Delaware, and the very first sprout was Early Victor.

Mr. John Burr passed away in 1892, being of the same age as the Century, after a life of much unselfish devotion to the interests of fruit growers.

The following is our description of this grape as it grows in Ontario.

ORIGIN: John Burr, Leavenworth, Kansas, from seed of Delaware fertilized with a vigorous grape of the Labrusca class.

VINE: Very vigorous, very productive and healthy.

BUNCH : 4 inches long by $3\frac{1}{2}$ broad, shouldered and very compact.

BERRY : Medium, round, black, with thick blue bloom, adheres well ; pulp tender, juicy, sweet and agreeable ; seeds, two.

SEASON : August 25th, (1899.)

QUALITY : Very good for dessert.

VALUE : Good for home market ; also very good for making claret wine.



FIG. 1823. DRAWING OF LIVING WORM, ABOUT NATURAL SIZE, SHOWING THE UNUSUAL SHAPE OF THE HEAD, AND THE STREAKS RUNNING LENGTHWISE.

A PECULIAR GREENHOUSE WORM.

THE florist of the College greenhouses, and two or three of the students, have occasionally come across, among the broken tiles of flower-pots, a peculiar flatworm, which they submitted to me for identification. Through lack of time for a thorough study of this worm I delayed investigation until a few days ago, when a careful search was made in the forcing house for good live specimens. I procured six large worms without much difficulty from the under surface of a few old boards which were lying on the moist, warm ground.

When at rest these worms have the appearance of dead, partly collapsed creatures which have already entered the early stages of decomposition, but a change comes over the scene when they are disturbed from their rest. The body becomes filled out, and begins to move. A copious supply of slime is exuded from all parts of the surface of the body, and wherever it travels it leaves a streak of slime behind it to mark its path. (Fig. 1823.)

The largest of these worms which I have seen measured about nine inches in length when fully distended, while smaller ones scarcely exceeded five to eight inches.

A peculiar feature of this worm's structure is the sucker at its anterior end. This organ is semi-circular, or crescentic, in outline, and probably functions both as a sucker and as a sense apparatus. By means of the sucker the hind portions of the body are brought forward by the contraction of the muscles, and with the aid of the eye-spots and olfactory pits on the margin of the sucker the worm secures the information so desirable in traversing an unknown region.

The shape of the sucker varies considerably while locomotion is taking place. Occasionally the front edge is serrated, and at other times it is notched. Fig. 1824, *e.f.g.h.*) The upper surface of the body is marked by three dark colored lines running lengthwise from sucker to tail, the middle line being darker and thinner than the two laterals. On each side is other dark lines similar to the middle one on the upper sur-

face. The under surface is also marked by dark lines which are wider apart on the anterior half than on the posterior half of the length of the body.

The mouth is situated on the under surface near the middle of the body. This feature is not readily seen in a living specimen, but is quite conspicuous in a specimen which has been dropped into dilute alcohol. The pharynx is then apparently everted as a white fringe of skin surrounding the opening. (Fig. 1824 a.)

The mode of locomotion is peculiar. The head seldom touches the ground, then only the lips, which are constantly changing shape, which are sometimes serrated, sometimes bifid. There is little of the sinuous movement so characteristic of the earthworm, but there is a muscular contraction which sends a wave backward from the head. According to a reliable authority, however, two rows of cilia, or fine threads, on the under surface of the body form the chief means of propulsion.

As to the position of this worm in the animal kingdom there seems to be little doubt that it belongs to the *Flatworms*, and on account of the presence of cilia on the lower surface of the body, and a three-branched intestine, it is classed among the *Triclad Turbellarians*, or more popularly, *Land Planarians*. This particular worm is known scientifically as *Bipalium Kewense*, a species indigenous to tropical regions, whence it has been carried to various countries with exported plants. It has already been found in hothouses in England, Germany, the Cape, and Sydney, Australia, but so far as I am aware, has not before been noted in Canada.

The Land Planarians are carnivorous, and feed on earthworms, slugs, wood-lice and insect-larvae. Lehnert states that "*Bipalium Kewense* pursues earthworms, seizes the upper surface of the anterior end by the glutinous secretion of its ventral surface,

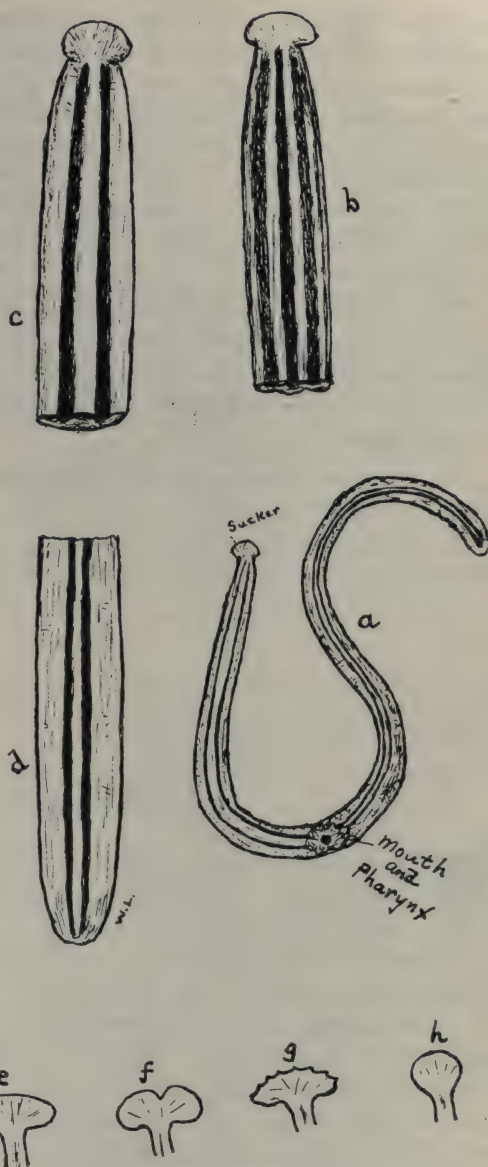


FIG. 1824.

(a) Worm in alcohol, contracted, showing the mouth on the under surface.

(b) Upper surface of front portion of worm, showing the three dark bands.

(c) Under surface of front portion of worm, showing the two dark bands and the intestine between them.

(d) Under portion of hind portion of worm, showing the two dark bands closer together.

(e f g h) Different forms taken by the head when worm is alive.

and then proceeds to envelop part or the whole of the worm within its pharynx, which is stretched as a thin skin over the body of its struggling prey. The tissues of the latter pass into the intestine of the Planarian and distend it greatly. After such a meal, which lasts from one to five hours, a *Bipalium* may remain for three months without seeking food."

The specimens of *Bipalium Kewense* obtained in European greenhouses never attain sexual maturity, but reproduce by division into fragments, each of which can reproduce all the organs of the parent.

My principal reason for describing this worm is to draw the attention of all florists to it so that we may learn more about its introduction into America. The florist at

the College here tells me that he first saw this worm three years ago. It has been known in England for over eight years. It is not a worm to be feared, and hence there need not be any alarm in the matter. I wish, however, to hear from any person who has seen this worm in his greenhouse.


WM. LOCHHEAD.

Ontario Agricultural College.

Guelph, May 3, 1900.

NOTE.—Since making this study, Miss Ormerod's reference to the same worm in her Report of Injurious Insects for 1899 has come to hand. The worm was evidently new to her, for she asked her correspondents to send it to the British Museum authorities for identification. In a footnote Miss Ormerod gives a valuable reference to the literature of Land Planarians: "Note of *Bipalium Kewense*, and the generic characters of Land Planarians" by Prof. F. Jeffrey Bell, M. A., in proceedings of the Zoological Society of London, 1886, part II., pp. 166-168. W. L.

HOME-GROWN FERTILIZERS.

HE fertilizer season has arrived, and the farmer is wondering what he shall feed his crops this year.

Commercial fertilizers have to be bought in some cases, but they should be looked on as a last resort. The recent sharp advances in the price of crude stock used in the manufacture of fertilizers, notably those furnishing nitrogen, make it more important than ever that the farmer look after the manurial resources of his farm. He must take more care to avoid unnecessary losses of plant food through careless methods of handling manure.

Nitrogen is probably the easiest of the fertilizing elements to secure on the farm. It grows in clover, beans and similar crops ;

it is prominent in all good barnyard manure and it is present in considerable quantities in some of the muck beds which are to be found in many parts of the country.

The liquid manure from cattle is richer in the amount as well as the quality of the nitrogen than is the solid. It follows that measures should be adopted whereby this portion can be saved and added to the solid manure, so that both may play their due part in keeping up the fertility of the farm.

Where the manure is not immediately applied to the land it should be so kept that it will not be exposed to the leaching or dissolving action of rain, as this necessarily causes a deterioration in value.

VERMONT EXPERIMENT STATION.

PLANT PARTNERSHIPS.

Οὐδὲς ἑαυτῷ ζῇ.- St. PAUL.

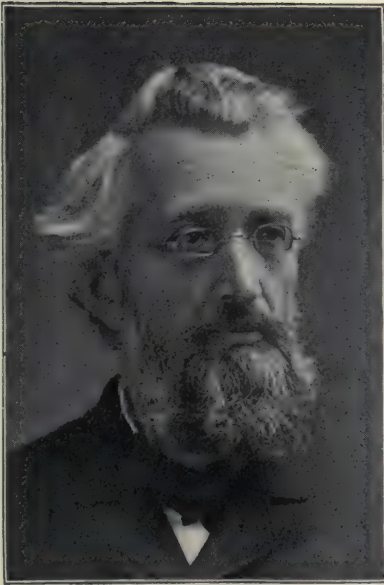


FIG. 1825. Mr. D. W. BEADLE.

THIS truth, enunciated by the great apostle is of wide application, it applies not only to man, but to all life, both animal and vegetable. Such is the interrelation of all living creatures that it is quite apparent that "no one lives to himself." From minutest infusoria to the largest animal, from the microscopic lichen to the royal oak this interdependence exists. That this fact has sometimes a very practical bearing upon the work of the horticulturist, this paper is intended to illustrate.

Careful students of plant life have ascertained that a considerable number of trees, shrubs and herbaceous plants are dependent upon the assistance of some other living plant to maintain life. Attempts to grow seedlings of beech and fir in soil from which

other plant life was strictly excluded, have always resulted in failure. For a short time they struggled on in a puny way and died. As in the fable, the lion, notwithstanding his great strength, was obliged, in order to save his life, to avail himself of the help of the feeble mouse, so the royal oak, that it may live, must accept the aid of the most feeble of plants.

Anton Kerner von Marilarun, Professor of Botany in the University of Vienna, in his Natural History of plants, states that all plants of Pyrolaceae and Vaccinaceae, wintergreen and whortelberry families; most if not all Ericaceae, Betulaceae, and Fagaceae heath, birch and beech families; a great number of the cone-bearing evergreens and some others, are dependent upon the assistance of a fungus partner for life and growth.

Readers of the Canadian Horticulturist will surely have made the acquaintance of some of the members of that extensive family of cryptogamous plants called fungi, and doubtless regard them as they do the San Jose Scale, enemies to be if possible exterminated. They will remember that fungi have no green color, neither roots, flowers, nor seeds; that their vegetative parts are usually hidden from observation, and only the organs of reproduction exposed to view. Some feed upon living plants, the parasitic; others upon decaying vegetable or animal matter, the saprophytic. Of the latter group some enter into a mutually beneficial arrangement or partnership with green-leaved plants, termed symbiosis; a word compounded from the Greek, which means living together.

In order that the process by which this partnership is formed may be clearly understood, let us recall the manner of growth of

these flowerless plants. We have said that fungi do not produce seeds, instead they produce great quantities of small bodies about one-twenty thousandth part of an inch in diameter called spores. These have no cotyledons, nor plumule, nor radicle as do seeds; but when a spore is deposited by a current of air on leaf or fruit of a flowering plant, or on decaying substances, and temperature and moisture are favorable, a thin-walled tubular cell emerges from the spore, which may either pierce the thin epidermis of the leaf or enter by some natural or accidental aperture. In the case of the saprophytic fungus there is usually no hindrance to its entrance. When once within it begins to draw nourishment from its host, to extend and to branch out. These tubular cells are called *hyphae*; those of the parasitic fungi have the power of decomposing the cell walls of the host plant, thus gaining access to the contents upon which they may be said to feed. When a network or mesh is formed by the branching and interlacing of the hyphae this network is called *mycelium*. Mushroom growers call it the "spawn."

The manner in which fungi assist the flowering plants and form the partnership with them that is to last for life is very simple. When germinating seed of a flowering plant sends its radicle into soil in which the appropriate fungus is growing the hyphae wrap themselves around the rootlet, soon covering it more or less perfectly with a mantle, a mycelial mantle. As this root grows, extending and branching in any direction, the fungus grows with it, wrapping it whithersoever it goes in its mycelium, continuing the process as long as the plant, be it herbaceous or ligneous, lives, even though that life endure for centuries. In some cases the mycelial mantle is but as a gauzy spider's web, in others a very thin evenly woven larger, or again it will be thickly woven, completely covering the root out of

sight. Mineral salts and other inorganic compounds requisite to the growth of the flowering plant are taken up by this mycelial mantle, and by it imparted to the epidermal cells of the root it enfolds, to be carried thence through stem and branches to the foliage where they are elaborated, digested as it were, changed from inorganic to organic, and go to build up the plant in all its parts. In return for this service the fungus receives from the flowering plant such organic material as is necessary to its growth, which, not having green leaves, it is unable to manufacture out of inorganic material, which organic matter is brought down from the foliage of its partner through the branches, stem and roots, and delivered to the absorbent cells of the mycelium. Thus a mutually beneficial copartnership is established between a flowering and a flowerless plant; this partnership is termed symbiosis, and the several members symbionts.

The discovery of this symbiosis has revealed to horticulturists the cause of the difficulty experienced in transplanting successfully plants of the families named above, and of propagating by cuttings oak, beech, whortleberry, rhododendron, laurel, trailing arbutus, etc. This has been found to be easily obviated by taking pains to obtain with the plant to be transplanted a supply of its symbiont. This can be done by securing a large ball of earth adhering to the roots proportionate in diameter to their spread, if possible to their minutest extremities and even beyond. Care must be taken to prevent the soil thus taken from becoming dry at all during the process of transplanting, for that would cause the death of the symbiont fungus. Also in propagating from cuttings, if a liberal supply of the mould containing the symbiont is abundantly mixed with the sand there should be no difficulty. It must, however, be constantly borne in mind that there will be no living hyphae in dry mould, the mould must be moist when

taken and kept moist, not soaking wet. In the spring of 1899 the writer saw thousands of plants of several genera of Ericaceae in healthy growing condition propagated from cuttings; and hundreds of oaks being transplanted, and conifers, each with its large ball of earth securely held in place by a warp of coarse sacking large enough to hold the ball securely in place and be brought up and tied at the base of the trunk.

The woods of Ontario can supply our flower gardens with many handsome and interesting flowering plants hitherto neglected because we did not know how to grow them. The round leaved wintergreen, *Pyrola rotundifolia*, with nodding very fragrant white flowers, grows in dry woods and in swamps. The bog wintergreen, *Pyrola uliginosa*, has purple flowers. The liverleaf wintergreen, *Pyrola asarifolia*, also grows in bogs, swamps and wet woods, flowers rose color.

Labrador tea, *Ledum*, *Greenlandicum*, grows in swamps, the white flowers abundant in terminal umbels.

Sheep laurel, *Kalmia angustifolia*, is exceedingly showy when laden with its purple or crimson flowers. It is very abundant in swamps and wet places in Muskoka and Northern Ontario.

Swamp laurel, *Kalmia glauca*, flowers borne in simple umbels, light purple, is common in the swamps around Gravenhurst.

Trailing arbutus, *Epigaea repens*, known to many as the beautiful, sweet scented Mayflower, delights in sandy soil and rocky woods. A few years ago it was common in the vicinity of Toronto, but is becoming scarce. These members of the wintergreen and heath families could be grown in the flower garden by giving attention to their requirements in the matter of soil and partner.

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SPRAYING OF CHERRY TREES.

THE Bulletin of the Hatch Experiment Station, Massachusetts, for March, 1900, states that wormy "fruit has grown less in amount each year since regular spraying has been practised, and the crop has been one of considerable profit. Careful experiments show that the *Monilia*

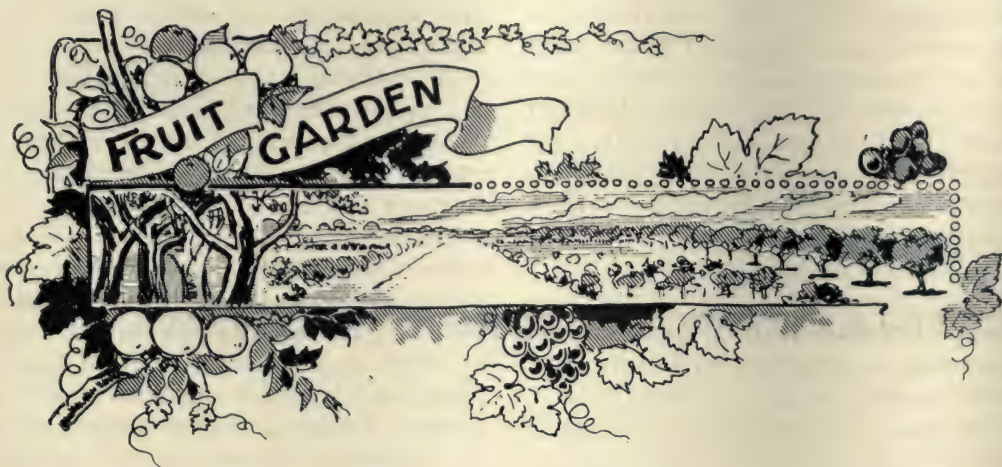
which sometimes causes the fruit to rot on the trees, or very soon after picking, can be largely prevented by spraying *after every rain* with the copper sulphate solution, 3 ounces to 50 gallons of water."

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PRUNING.—In the pruning of pyramidal fruit trees of all sorts care should be taken to encourage the formation of natural fruit spurs in preference to artificial ones; this is the rock on which many a young gardener and amateur has split by following the orthodox system of summer-pinching, as it is called. If a free growth is allowed during the summer and the branches kept thin, admitting a free circulation of sun and air among them, the wood will ripen properly,

and at the base of every leaf a bud is formed which will ultimately become a natural fruit spur. In the case of some varieties, such as the Jargonelle and Williams' Bon Chrétien Pears, it will be found that the terminal bud of one year's growth will be a fruit or bloom bud; in such a case it will be advisable to pinch it out, which will strengthen the side buds, and in the following year they will become natural fruit spurs.—*Journal of Horticulture*.



FRUIT CULTURE.—V.

THE PEACH.

WHILE a few hardy varieties may achieve a partial success in colder districts, the culture of the peach is not likely to be satisfactory where the thermometer habitually registers more than 10 degrees below zero. In Ontario the counties of Lincoln, Welland, Monck, Wentworth, Essex and Kent include the areas where peach growing is likely to be permanently profitable. A winter like the past, when, during February (1899), the thermometer in these districts several times touched a lower point than that mentioned, plainly demonstrates the truth of the statement.

PLANTING AND PRUNING.—The trees to be planted should be thrifty and straight, one year old from the bud. The process of planting has already been described. The mark, where the old stock was cut off and the bud grown from, should be at a level with or slightly below the surface of the ground. Before setting, the young tree should be carefully examined for the peach borer, which may often be found on nursery stock; and for root galls, which are somewhat similar

to those on the raspberry and apple. See Figs. 90 and 14. Trees with galls should be rejected. The head of the young trees should be started at from $2\frac{1}{2}$ to $3\frac{1}{2}$ ft. from the ground. If lower than this, there will be difficulty in cultivation, from the inevitable spread of the lower limbs; and if higher, picking will be less easy, and a top-heavy tree will be the result, which will be put to a severe test in high winds and under a heavy load of fruit. There are two systems of pruning the peach, both of which have strong advocates. In the one case the previous year's growth is shortened in one-half every season, a bushy and comparatively low head being attained. In the other system the inner wood is thinned out and the head is more open, with the branches following their natural growth. Whatever system is followed, the pruning is the same the first year or two, while the head is being formed. Figs. 25 and 26 show the method of treating the tree when planting. Fig. 27 illustrates the second year's pruning, enough branches being left to form a spreading vigorous head. Occasionally a top will die back or fail to pro-

duce good growth from the upper buds. In such a case it is better to select the strongest of the young shoots and make a fresh trunk. Figs. 28 and 29 will illustrate the point. The shortening in system has a tendency to produce a stocky growth with a greater amount of bearing wood. The shortening in, however, is in itself a thinning process, and when a comparatively small proportion of live buds remain after a severe winter, too much of the crop may be thus pruned off. After the trees attain a considerable size the practice is seldom followed, partly from the expense and partly because of the vigorous growth of the tree. As long as dead wood is removed and broken, and crowded limbs pruned out, the actual method of pruning is of far less importance than the



FIG 27

MICHIGAN BULLETIN
PRUNING AT END OF TWO YEARS.



FIG 25 PRUNED FIG 26 UNPRUNED
BULLETIN A COLL MICH

proper manuring and cultivation of the orchard.

Fig. 30 is an example of the open-made tree, with branches following the natural growth.

In Fig. 31 is illustrated the system of pruning by shortening in. This forms a photograph of a three-year old tree of the variety Hyne's Surprise.

In Fig. 32 is seen a three-year old peach, taken on July 26th. These trees have also been regularly shortened in.

SOIL AND LOCATION.—Many of the remarks made under "General Principles" will hold good in the case of the peach, but proximity to a body of water is of more importance than the kind of exposure. The ameliorating influence of a large body of water is so great and, with the peach, a few degrees of winter temperature one way or the other is often so important a matter, that the point should be allowed great weight in the choice

of location. Speaking generally, a soil that is very good for corn is the best peach soil. A fairly light, warm and deep sand is probably most suitable, and especially if the subsoil is gravelly or of a fairly porous character. The peach, of all trees, demands a well drained soil, and with no kind of fruit will underdraining pay so well.

DISTANCE OF PLANTING.—Growers differ widely as to the appropriate distance between peach trees; as near as 14 feet, and as far as 20 feet apart being advocated. The trees in the famous Hale orchard are only 13 feet apart, but the most thorough pruning and manuring are practiced, and the plan is not generally advisable. When spraying, cultivating, proper ripening and coloring of the fruit are all taken into account, it will be found that a generous space

between the trees is preferable. At least 18 feet each way is strongly advised.

CULTIVATION.—To secure the best results the cultivation of the peach must be thorough and constant. No tree will so soon suffer from neglect in this respect. Hoed crops alone should be allowed in the peach

orchard, and these should be discontinued after the third year. The practice of growing berries between the trees can only be followed at the expense of the trees. For the first two years strawberries might be allowed, but the amount of moisture evaporated by the plants and fruit is incredible to those who have not studied the matter, and there is always the tendency to crowd in on the tree rows. If raspberries are placed amongst the peach trees one row is enough with a row of roots or potatoes each side. The root

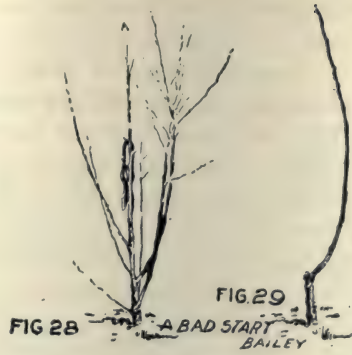


FIG.30

PRUNING BY THINNING OUT.

system of the raspberry has been illustrated in Fig. 4, and with two rows of raspberries between trees, even eighteen feet apart, it will be found that by the third year the roots of the trees and the berries are fighting in the same soil for moisture and food. Nothing but the highest manuring and cultivation under such circumstances can put the

MANURES.—The manuring of the earlier years of a peach orchard should be similar to that of the apple orchard. When the fruiting time comes the tree takes up large quantities of potash, and a dressing of seventy to eighty bushels per acre of unleached ashes will be profitably applied. If ashes are not conveniently obtained, muri-



trees in first-class condition. Towards the end of July the ground may be plowed to the trees and a clover crop, preferably mammoth clover or crimson clover, sown. The writer has had excellent results with the latter, even a severe winter like that of '98-'99 leaving enough of the clover to plow down in May and add much humus and direct plant food to the soil.

ate of potash will be the best form to apply the potash in. The commercial muriate usually contains about 50% of actual potash, and a dressing of some 400 pounds to the acre would be a fair equivalent to the amount of ashes suggested. If the muriate is used a dressing of phosphoric acid in the shape of bone meal or phosphate should also be applied. The grower must decide these

questions for himself. Briefly, when the trees are fruiting and at the same time the foliage is a healthy green and a fair growth of new wood is being made, the orchard has enough nitrogen and the manuring should be in the direction of potash and phosphoric acid. If, however, the growth is at all feeble and the foliage sickly, nitrate of soda—150 lbs. to the acre—or barnyard manure should be immediately applied.

tree would cover the expense, and if the tree is not thinned there is the extra labor to be faced in picking the additional number of peaches at the time of maturity. The fruit should be thinned when the size of small hickory nuts and left not less than three or four inches apart. The profits from such a process are large and undoubted, as all growers who have tried it will testify. For fuller information on this point readers are



THINNING.—This is so important a feature of successful peach culture, and the practice of thinning is so little followed, that a few remarks on the subject will be in order. Thinning lessens the strain on the vitality of the tree, the strength of the tree going not to the pulp but to the seed. It allows of a more even distribution of the fruit and thus saves a frequent break-down. It increases the size of the fruit. It diminishes the danger from rot. As far as the labor of thinning is concerned it is a comparatively small affair. From ten to twenty cents a

referred to the excellent bulletin by Prof. Craig, No. 1, Second Series, of the Central Experimental Farm.

VARIETIES.—Local conditions must decide the variety question to a large extent. Of the earlier kinds two of the best commonly planted are *Early Rivers* and *Hynes's Surprise*. Next in order of season come *Yellow St. John*, *Mountain Rose* (white), *Early Crawford*, *Reeve's Favorite*, *Elberta*, *Old Mixon*, (white), *Late Crawford*, *Wager*, *Smock* and *Steven's Rareripe* (white).

DISEASES AND INSECTS.—Chief among the diseases in point of destructiveness comes the "yellows." The origin and exact nature of this disease are unknown. It is highly contagious, and will ordinarily destroy a tree in three years. Though an On-

and wiry growths shown in the three central twigs in Fig. 33 will enable the grower to diagnose the case. Each outside twig in this figure is a normal twig.

Leaf-curl is a highly injurious fungous disease affecting the peach. Fig. 34 shows



tario statute provides for its destruction the law is often a dead letter owing to the apathy of the local authorities. The wise man will take out at once and burn any tree showing symptoms of this disease. The premature ripening and spotted appearance of the fruit is a sure sign, and the sickly yellow foliage

the typical appearance of a diseased twig. Three remedies exist for this trouble. Spraying with Bordeaux mixture, once before the blossoms open and once after will do much to control it. Whale oil soap, one pound to the gallon, has been thoroughly effective in Ohio, applied immediately before the

bursting of the buds; and using a white-wash as a winter spray. For the last remedy readers are referred to the Bulletin of the Ontario Agricultural Department "Instructions in Spraying."

Rot or *Monilia*. This fungus, which also affects the plum and cherry, is worse on early varieties and in a wet season. In gar-

dens where only a few trees are grown the affected specimens should be picked off and destroyed. A systematic use of the Bordeaux mixture will check it to a considerable extent.

The two most injurious insects to the peach are the curculio and the peach-borer. Paris green, four ounces to forty gallons, with a pound of lime added, will check the former. A thick wash compound of cement and skim-milk applied early in July will also be effective, and will prove more adhesive than any other wash.

M. BURRELL.

St. Catharines, Ont.



CENTRAL EXPERIMENTAL FARM NOTES—VIII.

UP to the 13th May there was very little warm weather at Ottawa; the latter part of April and early part of May being exceptionally cool and dry, and the frost late in leaving the soil. So cool did it become on the 10th and 11th May that the thermometer registered four and five degrees of frost, respectively, on these dates. Owing to the backward spring and the cool weather which preceded these severe frosts, there had not been very much growth, and what there was had been pretty well hardened; the result being that very little injury was done. A few apple and plum blossoms were injured at the Experimental Farm, but the majority appear to have been unhurt. On the 8th May there was a much needed rain, but the weather continued cool until the 13th, when it became warmer. On the 14th the thermometer registered 86° Fahr., and one felt for the first time this year that the growing season had begun.

Nearly everything that is usually hardy came through the winter in good condition, and the prospects at present are that there will be an abundant crop of apples, plums, cherries, and small fruits.

The Ontario apple is evidently not going to be hardy at Ottawa, unless it succeeds when top grafted. Several young trees were killed to near the ground last winter in the orchard here. An older tree also died last year. Most of the apple trees are looking well, and many varieties have been found to be of no value in this part of the country, the fruit being of an inferior quality, the trees have been removed to make way for other kinds. In order, however, not to lose sight of these varieties they have been top grafted, a number of sorts being on one tree. The majority of these varieties are of Russian origin.

The fine collection of American plums which is now in the orchard at the Experi-

mental Farm should be particularly interesting this year. It is time that these plums were more widely grown in the colder parts of Canada. Some of them are very large, and many of them are of good quality and heavy bearers. It is to be hoped that our nurserymen took advantage of the recent opportunity for importing stock from the United States to get a supply of some of the best varieties of these plums. The American plums would be much appreciated in those districts where the native wild plum is affected with blight, which has been so persistent for many years past that there is very rarely a crop of good plums unless the trees have been sprayed.

From present indications the crop of cherries should be large this year. A few more trees died last winter, root-killing being the cause in most cases. As far as we know, none of the trees which died were grafted or budded on the native bird cherry—*Prunus Pennsylvanica*. Trees budded on this stock in 1891 are still vigorous, the union is perfect, and we believe that for the colder parts of Canada this is one of the best, if not the best, stocks in use. The cherry orchard has been practically replaced during the past three years by trees worked on this stock, and this will afford a good object lesson as to the value of the bird cherry for this purpose.

As has been mentioned in previous notes, extensive experiments have been carried on in the Horticultural Department during the past few months to determine the value of lime as a remedy for the oyster shell bark louse. From results obtained last year we were convinced that lime, spread on the trees, would remove nearly all the scales from the trees, if the scales were covered by it. Our experiments this year are confirmatory. No injury to apple trees from the use of lime can be discovered. While the necessary data to determine the most econ-



FIG. 1826. CHARLES X LILAC, AT CENTRAL EXPERIMENTAL FARM.

omical formula will not be available for some weeks yet, we feel confident that spraying trees in the autumn when the trees are dormant, with a lime mixture, will prove the best, simplest and cheapest remedy for the oyster shell bark louse yet known.

The latter part of May and the first half of June is the season during which most of the flowering shrubs are at their best. At the Experimental Farm there is a collection of more than one hundred species and varieties of lilacs alone. These begin blooming during the third week of May, and there is a succession of these beautiful and popular flowers from that time until the end of June. In the Canadian Horticulturist for May, 1899, there is an article by Mr. Wm. Saunders, in which descriptions are given of

some of the best of these, also of those which are required if a succession of bloom is desired. The double and single varieties and the dark and delicately tinted purple ones are especially fine.

One of the best hardy spiræas is comparatively new species called *Sarguta*. This is a very early flowering sort, being in bloom about the same time as *Spiræa Thuubergii*, but is hardier than that species and of more graceful habit. Following this is *Spiræa Von Hcuttii*, which is a beautiful shrub of pendulous form bearing a profusion of dainty white flowers. Although this shrub is being more extensively planted, it will probably be a long time before there are too many of them. The Japanese quince, which bears a profusion of bright red flowers, is one of the best flowering shrubs where it can be grown successfully, but at Ottawa it is not very satisfactory, as the wood is not perfectly hardy and the flower buds are winter-killed to within a short distance of the ground every year. There is another species called *Pyrus (Cydonia) Maulei*, the flowers of which are also fine, which is quite hardy at Ottawa, the flower buds and the wood being seldom injured by winter. It is one of the most desirable of the shrubs which bloom in May.

The following is a list of some of the best perennials which bloom in June :

Alum-root (*Heuchera sanguinea*) ; German Iris (*Iris germanica*) ; Oriental poppy (*Papaver orientale*) ; Oris root (*Iris florentina*) ; Gas plant (*Dictamnus albus purpureus*) (*Fraxinella*) ; Jacob's Ladder (*Polemonium coeruleum*) ; Double flowered $\frac{3}{4}$ Dropwort (*Spiræa Filipendula fl. pl.*) ; Large flowered Gailardia (*Gillardia aristata grandiflora*) ; Double Sneezewort (*Achillea Ptarmica fl. pl.*) ; Lance-leaved Tickseed (*Coreopsis lanceolata*) ; Yellow Day Lily (*Hemerocallis flava*) ; Dumortier's Day Lily (*Hemerocallis Dumortierii*).

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THE QUARTER ACRE LOT OR ORCHARD.

THE quarter acre lot and orchard, I think, is a fit subject for my paper, as in towns and also a large area of the cities we either own or rent a house with a quarter or half acre of land; therefore, I think this paper should demand a considerable amount of discussion. But before I enter into the quarter acre lot and orchard, I would say to the young men of both city and town that there could not be any nicer or better, or, perhaps, any more profitable study than the orchard. Let a schoolboy in his early 'teens take the seed of the apple, pear or plum; let him sow them, and what a delight it will be to him when he will first see the tiny little leaflets peep through the soil. Then he becomes interested as he watches the growth, until the time comes for to graft or bud that stock with his favorite fruit, and there he does assist nature in her grand design; and still he watches its advancement, and before he is through with his study he receives his reward, for the tiny little leaves that he first watched coming through the soil is now a large tree loaded with delicious fruit. Oh, what a happy thought and what pleasure for that young man when he grows to be an old man to think that he assisted nature to some degree! But I fear I have lost sight of my quarter acre lot and orchard. And now, by way of illustration, say a quarter acre of land contains, as most lots are laid out, 112 x 56 feet. Now, take the site of our house and yard; of the quarter acre, what is left for the orchard? The house will be 15 feet from the street line, house and shed 40 feet, which will leave about 57 x 56 feet, on which can be planted 10 fruit trees—1 early apple, 2 late apple, 2 plum trees, 2 pear trees, 1 cherry and 2 winter apple trees; and beside these say 6 gooseberry, 6 currant, a few raspberry bushes and

some grape vines and a small bed of strawberries, and yet there will be room for a few rows of early potatoes and other vegetables. Certainly as the trees grow in size the ground will be covered by them, and it will not be fit for vegetables. And if we only knew the benefit of good ripe fruit to our health, we would use more of it. But, sir, we are told that when they are got from the store the fruits are half ripe and wilted after lying in the shop window for several days, and I do believe that is one reason why the people do not use more fruit. But the quarter acre orchard will get over all that. What nicer amusement can the merchant wish for, after being all day in his store, or the mechanic after leaving his work; it may be some dusty workshop. Yes, and even the hard-toiling laborer will find pleasure in going into his little garden and spend a short time among his fruit trees and vegetable beds. It is much better than loafing at some street corner or tavern door. In his garden he will reap his reward, for early in the season when the good wife goes into the garden and gathers in the nice fresh vegetables, which we all long for at this particular time of the year, we can truly say it is the reward of his labor. And when the fruit season has come, and again she takes a trip into the garden and plucks the first plate of strawberries or raspberries, and, how tempting, those few lovely apples, plums for preserve, or those nice cherries for the little children. And of a winter's evening, after supper, the wife brings up a nice plate of apples from the cellar, will not the husband and children be delighted? And all this from the quarter acre lot!

T. CONOLLY.

A paper read before the Lindsay Horticultural Society.

THE BEN DAVIS CONTROVERSY.

IT WAS not really my intention to add another word to the controversy on the Ben Davis which has been carried on in *The Horticulturist* for many months past. But on communicating with Professor Craig, whose opinion was cited by Senator Ferguson as against the longevity of this particular tree, I find that he in nowise bears out the Senator's view. On the contrary, he fully justifies my own contention that the deterioration he spoke of at Halifax must apply in a commercial sense to the fruit and not to the tree. "A misapprehension will not down until it is plainly corrected," writes the Senator, in the April number, and as there has evidently been a misapprehension of Professor Craig's words on somebody's part (not mine), I beg leave to state the case in dispute clearly and terminate with the authority which practically settles the case.

In an article in last year's *Horticulturist*, I marvelled at an opinion expressed to me by Senator Ferguson, who had recently returned from a trip to Nova Scotia, that the Ben Davis tree was a "slow grower" and of "short duration" in that province, and also in Eastern Prince Edward Island. The estimable Secretary of the F. G. A. of Nova Scotia immediately took the matter up, and declared that the tree was as great a grower in his province as I found it to be here, and as to duration, that was a question for time to determine. I rejoined that this must necessarily be so; but that a portion of a discussion in the N. S. report for 1899 conveyed the same impression as did the Senator's words. Professor Sears was concerned in the citation, and he comes to the rescue by saying that the Davis was not intended by the parties to the discussion to be regarded as a "slow grower," but the Gravenstein a more rapid grower, and, therefore, not desirable as a top graft on

such stock. And he modifies this somewhat by adding that this is not so much so because the Gravenstein can outgrow the Davis (which is questioned very generally), but because the former has the habit of making comparatively few large branches, whilst the latter divides up into numerous small ones. Senator Ferguson also invokes his splendid paper, read at the late annual meeting of the F. G. A. of P. E. I., in which he says "that Professor Craig does not regard it (the Ben Davis) as a tree that will, as it grows old, continue to bear the best fruit"; still holding, all will observe, to the idea that this tree must be short lived. I could never discover the data on which such an opinion was based. When the Senator read the passage in question before the association, I made bold to interrupt him and say: "Did Professor 'Craig really declare that the tree would not last, or did he say the present place of its fruit in public favor would not last when it became better known?" "He said, in his opinion, the tree would be of short duration," the Senator replied. "Well, we ought to know," I added, "on what he bases this opinion." Now, it transpires that with those gentlemen the tree and its fruit have been interchanged with undue freedom. No mortal man ever contended that the fruit, especially as grown with us, could ever be regarded as No. 1. It will grow well, keep clean easily, fill the barrel surprisingly, suffer all the incidents and accidents of transit, and go on the market at Liverpool at a time when fruit is scarce, in splendid shape, and thus secure a good price; that is all. But the tree, as a tree, is grand. It grows like "a-house-a-fire," if you permit me a boy's phrase; stands extreme climatic changes admirably; is free from the enemies which beset other sorts, and wants less attention than any other tree we plant. Why it

should soon run its course, when it now gives every evidence of a fresh old age, I could not see. Professor Craig was cited as having issued its death warrant, and it had to die. The Professor was altogether misunderstood, and as his opinion, or a misconception of it, led to all this discussion, it was of prime importance that we should have it clearly expressed by himself. I have therefore great pleasure in appending the kind letter of the learned Professor herewith. It is in reply to a note from me asking for a categorical statement on the subject, and will be read with interest by even those Upper Province horticulturists who may perhaps betimes be bored by the iteration of maritime difficulties in these columns :

DEAR FATHER BURKE,—After a very long silence, I am glad to hear from you again. I have noticed one or two references to some remarks which I made somewhere regarding the Ben Davis apple—its present value, and its future prospects.

The Ben Davis apple tree is more at home in the Ozark regions of Missouri and Arkansas than anywhere else in the apple belt. It is extremely productive there. The apples grow to a fine size, and really are quite eatable when thoroughly ripe. The quality is better in that region than anywhere else that I know of.

The Ben Davis is being planted very freely all over the apple-growing region. The point is this—that it is an apple of very poor quality at the best, that it is much better adapted to this western country than to the east, and finally, that when its true merits are recognized upon the British and foreign markets the price is sure to fall, and people will discriminate between well-grown apples of this variety and other Ben Davises less handsome and of inferior quality. According to

my observation, the Maritime Provinces cannot compete—nor can New York—with Missouri and Arkansas, in growing the Ben Davis. I did not say that the apple, when widely grown, would deteriorate in quality, but I intended to convey the impression that its true quality would eventually become generally recognized, and that in time it would take its proper place in the markets of the world, and this, from the quality standpoint, would be near the bottom.

As far as the tree itself is concerned, I am of the opinion that it would be longer lived in Nova Scotia and on the Island than here in the west; but it originated out here, and it requires the warm suns and intense heat of our summers to improve the quality of the fruit and give it plenty of color.

I thank you for sending me a copy of your Annual Report, which is most interesting, and also for doing me the honor of placing me among your honorary members. I think your society is entering upon an era of prosperity, and I feel sure that it will do much to advance the fruit interests of the Island.

I have pleasure in sending you a copy of a bulletin on plums recently issued here, with the hope that you may find in it something of interest.

Yours very truly,

Ames, Iowa, April 20.

JOHN CRAIG.

It will thus be seen that the Ben Davis' "short duration," according to Professor Craig, is altogether of a commercial character, and even upon this point, many will agree to differ with him, while of the tree itself, the indications are that it will be enjoying as great an immunity from the ravages of time as it will do from the depredations of sneak thieves, without a change comes over present tastes—and *de gustibus non est disputandum*—when we are all gathered to our fathers.

Alberton, P. E. I.

A. E. BURKE.

Number of Trees or Plants on an Acre at Various Distances.

At 4 feet apart each way	2729
" 5 "	1742
" 6 "	1200
" 8 "	680
" 10 "	430
" 12 "	325
" 15 "	200
" 18 "	135
" 20 "	110
" 25 "	70
" 30 "	50

The number of plants required for an acre, at any given distance apart, may be ascertained by dividing the number of square feet in an acre (43,560) by the number of square feet given to each plant, which is obtained by multiplying the distance between *rows* by the distance between the *plants*. Thus, strawberries planted three feet by one foot gives each plant three square feet, or 14,520 plants to the acre.

THE APPLE AND PEAR MARKS ACT.

IN response to the request of our Association the Hon. Sidney Fisher has introduced an act to provide for the marking and inspection of packages of apples and pears for export, which reads as follows :

1. This Act may be cited as *Apple and Pear Marks Act*, 1900.

2. This Act shall come into operation on the first day of July, 1900.

3. Every person who, by himself or through the agency of another person, packs apples or pears in a closed package, intended for export, shall cause the package to be marked in a plain and indelible manner before it is taken from the premises where it is packed,—

(a) with the initials of the Christian name and the full surname and address of the packer ;

(b) with the minimum size of the fruit in inches;

(c) with the name of the variety, and

(d) with a designation of the grade of the fruit.

4. No person shall sell, offer, expose or have in his possession for sale any apples or pears packed in a closed package and intended for export unless (a) the name and address of the packer and (b) the diameter in inches (or fractions thereof) across the core of the apples or pears, as the case may be, are marked upon the package in a plain and indelible manner.

5. No person shall sell, offer, expose or have in his possession for sale any apples or pears packed in a closed package and intended for export upon which is marked the grade "A No. 1 Canadian," or any similar designation, unless such fruit consists of well-grown specimens of one variety, of normal shape and not less than ninety per cent. in each package free from scab, worm holes, bruises and other defects, and properly packed.

6. No person shall sell, offer, expose or have in his possession for sale any apples or pears packed in a closed package and intended for export upon which is marked the grade "No. 1 Canadian," or any similar designation, unless such fruit consists of specimens of one variety, sound, of fairly uniform size and not less than eighty per cent. in each package free from scab, worm holes, bruises and other defects and properly packed.

7. No person shall sell, offer, expose or have in his possession for sale any apples or pears packed in a closed package and intended for export which are disqualified from being marked "A No. 1 Canadian" or "No. 1 Canadian," unless such package is marked "No. 2 Canadian" in a plain and indelible manner.

8. No person shall sell, offer, expose or have in his possession for sale any apples or pears packed in a closed package and intended for export upon which is marked any designation of size, grade or variety which falsely represents such fruit; and it shall be considered a false representation when more than ten per cent. of such fruit are substan-

tially smaller in size than, or inferior in grade to, or different in variety from the marks on such package.

9. Every person who, by himself or through the agency of another person, violates any of the provisions of this Act shall, for each offence, upon summary conviction, be liable to a fine not exceeding one dollar and not less than fifty cents for each package which is packed, sold, offered, exposed or had in possession for sale contrary to the provisions of this Act, together with the costs of prosecution, and in default of payment of such fine and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding one month, unless such fine and the costs of enforcing it are sooner paid.

10. Whenever any apples or pears packed in a closed package are found to be falsely marked, any inspector charged with the enforcement of this Act may efface such false marks and mark the words "falsely marked" in a plain and indelible manner on such package.

11. Every person who wilfully alters effaces or obliterates wholly or partially, or causes to be altered, effaced or obliterated, any inspector's marks on any package which has undergone inspection, shall incur a penalty of forty dollars.

12. The person on whose behalf any apples or pears are packed, sold, offered or had in possession for sale, contrary to the provisions of the foregoing sections of this Act, shall be *prima facie* liable for the violation of this Act.

13. It shall be lawful for any person charged with the enforcement of this Act to enter upon any premises to make an examination of any packages of apples or pears suspected of being falsely marked in violation of the provisions of this Act, whether such packages are on the premises of the owner, or on other premises, or in the possession of a railway or steamship company; and any person who obstructs or refuses to permit the making of any such examination, shall, upon summary conviction, be liable to a penalty not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding six months, unless the said penalty and costs of enforcing it are sooner paid.

14. In any complaint, information or conviction under this Act, the matter complained of may be declared, and shall be held, to have arisen, within the meaning of Part LVIII of *The Criminal Code*, 1892, at the place where the apples or pears were packed, sold, offered, exposed or had in possession for sale.

15. No appeal shall lie from any conviction under this Act except to a superior, county, circuit or district court, or the court of the sessions of the peace having jurisdiction where the conviction was had; and such appeal shall be brought, notice of appeal in writing given, recognizance entered into, or deposit made within ten days after

the date of conviction; and such trial shall be heard, tried, adjudicated upon and decided, without the intervention of a jury, at such time and place as the court or judge hearing the trial appoints, within thirty days from the date of conviction, unless the said court or judge extends the time for hearing and decision beyond such thirty days; and in all other respects not provided for in this Act, the procedure under Part LVIII of *The Criminal Code*, 1892, shall, so far as applicable, apply.

16. Any pecuniary penalty imposed under this Act shall, when recovered, be payable one-half to the informant or complainant, and the other half to Her Majesty.

17. The Governor in Council may make such regulations as he considers necessary in order to secure the efficient operations of this Act; and the regulations so made shall be in force from the date of their publication in *The Canada Gazette*, or from such other date as is specified in the proclamation in that behalf.

STUB ROOT PRUNING.

WE HEAR a good deal of late about the Stringfellow method of pruning trees, trees, which is the result of some experiments in close root pruning by H. M. Stringfellow, of Texas. He cuts off the top of a transplanted tree to say 12 to 18 inches high, and cuts off nearly all the roots, leaving only stubs an inch or two long. The ideas assumed by Mr. Stringfellow are that: (1) Seedling, non-transplanted trees are longer lived, hardier and healthier than the trees of orchards; (2) that this superiority is largely due to the presence of a tap root system, and (3) that the nearer a transplanted tree is reduced to the form of a young seedling or cutting, the greater is its tendency to develop a tap root system.

We do not believe in the theory nor in the assumption upon which he grounds it, and experiments made at Cornell University do not support it. The fact that a tree that has had its roots closely cut off may live and throw out fresh roots, is no argument that it would not have done better if the roots had not been cut.

Mr. Stringfellow, however, is very persistent in his theory, and means to put it into practice, as may be seen from the following clipping:

Orchardists and nurserymen everywhere have

been intensely interested in the revolutionary method of fruit-tree planting, advocated by Mr. H. M. Stringfellow, who, with the courage of his convictions, is now putting his theory into practice on his recently purchased land near Lampasas, Texas. The following extract from a letter to President Ramsey, of the Texas Horticultural Society is, as the latter says: "The first chapter in the history of an orchard that is going to be talked about and watched closer than any that has been planted since the days when Adam was superintendent of a truck patch and home orchard."

Mr. Stringfellow writes, in part: "I laid off my rows with a strong line and tags tied securely where the trees were to stand. I then measured and marked the ends of the rows, the rows being just long enough to allow of stretching the line nicely. This was all on virgin, unbroken prairie sod. I then got a two-inch iron bar, sharpened at the end, and three and a-half feet long and also a ten-pound sledge hammer. I had two men; one held and carried the bar, setting it at each tag, while the other man drove it down about one foot. It was heavy work and they had to alternate every five or six holes. Well, the first day I wore that iron bar off to 18 inches and drove 900 or so holes. The next day I tried a one and a-half inch bar and battered that away by night and drove about as many; the third day I got a one-inch steel bar, and that stood much better and drove about 1,200 holes. I then root-pruned all the trees and stuck them down to the bottom, pears in the larger holes and apples in the smaller. I had a wagon with a barrel of water and a half load of fine silt from a creek bed, with a boy to drive and wait on us. I dropped the trees, carrying two buckets, one of the earth and the other water, and a small tin cup. After sticking the tree in the hole they took and poured them slowly into the holes at the same time until filled up. This settled the earth nicely about the roots and stem. We set the whole 3,000 in less than three days. Every tree is growing fine. * * * Now, you just look out for the finest, healthiest and most productive orchard in the country."

MORE ABOUT THE PAPAWS.

THE species of Papaw mentioned by Mr. R. Cameron in the March issue of The Canadian Horticulturist as being native to Southern Canada is an old friend of my boyhood in Southern Ohio. It grows there to great perfection, some of the trees being fully a foot in diameter, although six inches is a large one; it is usually a bush. I have gathered fruit from the wild trees near my old Ohio home and also in Kentucky, Indiana and as far west as eastern Kansas that was more than six inches long and about half as thick. The aroma was sometimes so strong that I have been led to stop and hitch my team by the roadside and follow the scent of the ripe fruit through the thick woods for a hundred yards or more, and where I could not see the Papaw bushes until I got very near them. Many a rich feast have I had on such occasions. This fruit is worthy of culture.

But the Papaw mentioned as being found in South Africa is a very different fruit, both botanically and in point of flavor, size, shape, etc., of fruit. This is *Carica papaya*, which is an annual and is strictly tropical. It is properly called Melon Papaw, because the

fruit is about the size, shape and color of an average yellow muskmelon or cantaloupe. These large fruits are borne at the axils of the leaves, which are also very large and something like those of the castor bean plant. The stalk is straight and has no branches.

When cut open the fruit shows a flesh about an inch thick, and there are numerous small round seeds fastened to it. The flesh is yellow, very juicy and about as soft as that of a very ripe cantaloupe. The flavor is somewhat sweetish but rather insipid, and I always thought a little salt or sugar or both together added character to it. It is not so rich and agreeable, to my taste, as the true Papaw of America.

So far as the effect of the juice of the Melon Papaw in tendering beefsteaks is concerned I have never tried it, but this is said to be true. It may also be anti-dyspeptic, as Mr. Allan, of Africa, says, but anyone who would undertake to "grate" a ripe Melon Papaw would have a sloppy mess. Moreover, this fruit cannot be grown outside of tropical regions.

H. E. VANDEMAN.

Parksley, Va., March 20th, 1900.

ARRANGEMENT OF HOME GROUNDS.

SIR,—In looking over the last number of the Canadian Horticulturist (I am a constant reader of all the numbers) my attention was held closely to the first item in the "Question Drawer," entitled—"Arrangement of Home Grounds." Replying to the letter of inquiry, Mr. W. H. Manning says: "It is usually unwise to locate a house on the summit of a ridge for it makes the building unduly intrusive, etc." And further on he continues: "It is generally better to locate

at the side or at the base of a slope, reserving views from a higher level for occasional enjoyment or for enjoyment from upper windows." Looking back to "Subscriber's" letter, he says: "The view from position marked for house is grand, especially to the north." Let me ask a question: is subscriber more interested in presenting a picture for his neighbor to look at and down upon, or in being in a position where he can command a grand view at all times, and can

offer his neighbor the same privilege when enjoying the hospitality of his home? Who wants to climb a flight of stairs and to gaze from a bedroom window in order to get a grand view, when the same might be obtained from the first floor from the windows of the parlor, the library, the living room, where the whole family and visitors gather so many hours of the day?

If subscriber has sufficient land so he can afford to take seven acres for a lawn, putting his fruit trees in the background where they will not obstruct his view, he will be planning for great beauty and happiness in the future. He will secure for himself and family a restful breathing spot that will intensify the love for home. A lawn of that size is not difficult to care for; going over it three times a season with a scythe is sufficient to keep it in shape for walking over it. The more frequent portions could have a lawn mower run over them, leaving the cut grass on the ground for a mulch. A few years will give a turf so thick that constant running over it would make no impression.

Let me assure subscriber that he will never tire of his grand view, for he will never see it twice in exactly the same way.

The conditions in Canada are no doubt similar to those in Minnesota, and a scene that is grand in summer, borders on the sublime in winter, when seen in the peaceful purity of perfect rest only possible in regions of heavy snow.

The impressions of early childhood (the writer lived in Canada in those days "just over the line") are imbedded deeply in memory, almost as much so as Mother Earth herself is in the snows of winter.

Set out a few trees in an irregular group of five to seven, near the house—say the nearest about thirty feet from it, that will relieve the too great prominence of the house.

Then trim the trees as they grow so they will not interfere with views from the house. The bodies of the trees will form living frames for the beautiful pictures furnished by grand old nature. With evergreens and the hardy flowering shrubs, the prosy part of the home grounds—kitchen garden, barn and clothes reel may be made so many adjuncts to a harmonious whole.

Yours truly,

ANNA B. UNDERWOOD.

Lake City, Minn.

SUCCESS AND FAILURE.—During the autumn of 1899, there were sent forward from Grimsby to Great Britain in cold storage, for experiment, 127 cases of peaches, 3746 cases of pears, 1456 cases of apples, and 82 cases of quinces. Of the peaches, one lot of 28 cases sold at \$2.46 each; another of 30 cases sold for \$2.99; good prices surely for about half a bushel of fruit! Pears also have done well in every case in which they have arrived in good condition.

In one instance 145 cases of Bartlett's (less than half a bushel each) were sold in Manchester, for \$1.97 each, and netted in Grimsby \$1.54 per case. Another successful instance was a shipment of 242 cases of Duchess pears sent forward by A. H. Pettit & Sons, which were sold at \$1.97 in London, and netted \$1.40 in Grimsby. Our readers will find Mr. Robertson's full report in the Report of our Association for 1899, which is being sent out.



TIMELY TOPICS FOR THE AMATEUR—IV.

JUNE ! floral June ! the rose-month of the year, when the Rose with its fragrant, queenly blossoms, demonstrates, with more than its usual attractiveness, the right to retain among its many beautiful floral associates, the proud title so universally accorded it, as "The Queen of the Garden."

The Rose, however, has by no means the entire monopoly just now in the garden ; as the fragrant blossoms of tree and shrub, as well as of many other plants, demand their share of admiration, from all lovers of the beauty so lavishly displayed at this time of the year, in the floral world around.

June also brings us many of the useful and healthful first products of the fruit and vegetable garden, that are so acceptable at this early summer season ; and that so well repay the comparatively small amount of care and labor required to produce them.

Pests as well as pleasures, however, usually come with the good things that June brings us in the garden, the increasing warm weather causing greater activity amongst injurious insects and similar pests. Constant and close watchfulness, and an

early application of the remedies and preventives recommended in the formulas published in horticultural journals, is very necessary to successfully combat these ever increasing enemies to plant life. The old maxim that "Prevention is better than cure," may be applied with as much force now as it ever was, especially in the garden ; not only to the attacks of injurious insects and similar pests, but also to the successive crops of weeds that appear so rapidly during the summer months.

THE GREENHOUSE : June is the moving-out month in this department ; as most of the plants that have occupied the greenhouse all the winter and spring, have to be gradually introduced, as the weather permits, to their summer quarters.

Geraniums and the hardier class of bedding plants, such as verbenas, petunias, and pyrethrum should be planted out in the beds or borders as early as possible. Coleus, achryanthes, and the more tender plants may be planted out after all danger of frost is over.

Palms, cordylines, *Ficus elastica* and most hardwooded plants can be stood outside ; plunge the pots in, or stand them on coal

ashes if possible, in a partially shaded position; they will require much less attention, and do better than if left in the greenhouse.

Azaleas may be stood out, or plunged outside in ashes; too much shade is not good for them, syringe daily, and keep the roots moist, but not soddened with water.

Young plants of abutilons, *Aloysia citrifolia* and similar plants raised from cuttings should be potted in rich soil, and plunged outside in the open and given plenty of water. Old plants of abutilons are seldom a success as pot plants, they do better planted out permanently in the greenhouse. Carnations should be planted out at once. Chrysanthemums that are to be grown outside should be in their flowering pots by this time, and plunged out in the open; pinching back, staking and tying, will have to be attended to as required; give them plenty of water. If single stemmed specimens of these are required, the pinching process must be omitted; these will succeed best in the greenhouse; they require a great deal of attention when grown inside, with plenty of air and water, and syringing often.

Winter flowering begonias are best stood outside in a shaded position during July and August.

Stevias and eupatoriums should be potted liberally, as they require lots of root room, plunge them out in the open and give them plenty of water when established in the pots.

Seedling primulas and cyclamen can be kept in the greenhouse or in a cold frame, shade well, give air and water as required. Old plants or corms of cyclamen will do best out in the frame, in a cool shaded position, give them very little water during summer.

Tuberous begonias will do better and continue in flower longer in a frame outside, keep the sash over them, shade fairly well, and give plenty of air night and day, water well at the roots only; these plants may be



FIG. 1827. POLYANTHUS PRIMROSE.

plunged outside in a shaded position during summer.

Gloxinias, gesneras and achimenes, are best left in the greenhouse, water them well at the roots until they have done flowering, when water can be gradually withheld.

If early cinerarias and calceolarias are required for next winter's flowering, seed may be sown about the end of June, in pots or shallow boxes in light soil; put the pots or boxes out in a frame in a cool shaded place; sprinkle some tobacco dust or tobacco stems, around and under the pots, renew the stems every week or two, this will keep down green fly; water the seed carefully and often; the sash must be kept over them, but give plenty of air by tilting the sash. (See Fig. 1829.)

Put a few *Ficus elastica* cuttings in the cutting bed, they will make nice plants if grown on in pots until winter.

Genistas should be pruned into shape, repotted and plunged outside, or planted out in the open border.



FIG. 1828. SWAINSONIA GALEGIFOLIA ALBA.

Pot roses for winter flowering should be stood outside in partial shade, and given only sufficient water to keep the soil barely moist, so as to induce a period of partial rest.

Fancy pelargoniums that have done flowering can be treated the same as the pot roses; a few cuttings of pelargoniums may be put in the cutting bed to grow on for next season, young plants of these give the finest blooms.

Pot a few geraniums and grow on as recommended in last month's journal.

Fuchsias require plenty of shade, air and moisture; syringe often.

Swainsonia galegifolia alba is a pretty and useful plant for winter and spring flowering in the greenhouse, it requires rich, loamy soil, plenty of light, but very little hot sun; it succeeds well planted out in a border in the greenhouse, or on a bench.

The cuttings of this plant are not easy to strike, they require a close, moist heat to be successful with them. (See fig. 1828.)

Ferns require plenty of shade and moisture. Keep the floors of the greenhouse well dampened, especially for exotic ferns, this is better for them than syringing.

Watering can be done in the evening as the weather gets warmer.

Renew the shading if required. Ventilate freely. The top ventilators may be left open on very warm nights.

WINDOW PLANTS: Palms, cordylines, Ficus and similar plants will do best stood outside in a partially shaded place. Repot them if necessary. Plant out geraniums and all border plants not needed for next winter's use in the window. Cactus will do best stood outside after flowering, a little shade at midday will benefit them, they must not be over watered during summer. Rex and summer flowering begonias, oxalis, cyperus (umbrella plant), ivy-leaved geraniums, far-fugium grande, and a few native ferns in pots will help to keep the window bright and attractive in the hot weather. Syringe the plants, except the Rex begonia, as often as convenient every two or three days at least. Watch out for green fly and red spider, especially the latter. Window boxes, in positions not exposed to the sun at midday, look very pretty in summer. Cordylines, palms, strong growing geraniums, and coleus do well for the centre of these; for the edges of the box use lobelia, cuphea, othonna crassifolia, variegated or green tradescantia, variegated vincas, nasturtiums, double white allysum, ivy-leaved and Madame Salleroy geraniums and perhaps a few single petunias; these, if tastefully arranged and planted in rich loamy soil, and given plenty of water when the plants are established, will make a gorgeous display for the window during summer and early autumn.

FLOWER GARDEN: Planting the flower beds



FIG 1829. CINERARIA; 3 ft. high; and had 400 flowers at one time.

and borders will occupy the early part of June; leave coleus, cannas, and *Caladium esculentum* until the last.

Dahlias, if not already planted, should be put out at once; light soil and an abundance of water agrees well with dahlias.

Mowing lawns, hoeing weeds, staking and tying plants, must be constantly attended to.

Many of the flowering shrubs will be in their full beauty now; by judiciously thinning out the most prominent sprays or spikes of bloom, a supply of cut flowers may be

secured for the house, as well as give the plant all the pruning it may possibly require. Care must be taken when cutting these shrubs not to thin out too much in any one place. Perennials will keep the garden looking gay until the very hot weather sets in. *Antirrhinums* and *Gailardia grandiflora*, will continue flowering during July and August, if kept well watered.

Phlox drummondii, delphiniums, coreopsis, cornflower, zinnias, stocks, and other annuals, will brighten up the garden until the asters come in later on.

If there is a dry, sandy spot, fully exposed to the sun, where nothing is supposed to grow, fork up the soil and rake it fine; then sow some portulacca seed on it broadcast, cover the seeds very lightly, it will probably be the brightest spot in your garden during the hot days of July and August.

Polyanthus primroses and cowslips should be divided up and transplanted as soon as they are out of flower; these plants that are such favorites in English gardens are quite hardy in this part of Ontario, and make very pretty border plants; they grow readily from seed. Fig. 1827.

FRUIT GARDEN: Gooseberry and currant bushes will still require watching to keep down the caterpillars; a little dry hellebore applied carefully where needed is the safest remedy, now the fruit is so far advanced.

Spray apple, pear, peach and plum trees

with Bordeaux mixture, when the blossoms have fallen. Plums often suffer from attacks of curculio, shaking these pests into a sheet spread under the tree, and then destroying them, seems an effectual method of disposing of these destructive insects. Grape vines should be gone over and the shoots pinched off about two joints above the small bunches of grapes; this should be done just before or immediately after the grapes are in bloom.

Strawberries, and later on, raspberries, will be welcome delicacies at the table. Thin out the fruit of gooseberries and currants if heavily cropped, it will help the fruit left on the bushes, as well as relieve the anxiety of the housewife in supplying the table, when, as a rule, empty preserve jars are more plentiful than full ones.

VEGETABLE GARDEN: Early peas and spinach will soon be plentiful. Spinach is not as generally appreciated as it deserves, as it is a most healthful vegetable, easily grown and very productive, it should be sown very early in the season, late sowings are as a rule valueless.

Asparagus should not be cut after the middle of June, keep down the weeds on the beds, and let it grow until fall; you will have better asparagus than by cutting it late in the season for table, very late cutting weakens the crowns for next year's supply.

Plant winter and savoy cabbage about the 20th, or as soon after as possible. Cabbage

worms will soon be troublesome, several remedies for these are recommended. Persian insect powder (Pyrethum) mixed with equal quantities of fine air-slacked lime, as recommended in March, 1898, No. of Horticulturist, I have found to be very effective; the great difficulty is to get the powder fresh and strong. For cut worms get a pointed stick and search just under the surface of the soil, near where it is carrying on its work of destruction, or it can be caught on the plants at night with the aid of a lantern. Plant out leeks as soon as the plants are large enough, treat the same as for celery.

Plant corn, melon, cucumber, vegetable marrow and squash seeds, the two last named may be planted here and there in the corn hills.

Plant out tomato plants, the cut worm is very partial to these.

Sow a few chinese, rose and the white variety of radish for summer use. Radish seed, of early varieties, may be sown with white turnips, the black fly prefers the radish to the turnip; this method may save your crop of turnips, as well as perhaps give you a few nice radishes for a relish in hot weather. Keep the hoe busy, "a stroke in time will destroy more than nine." Surface stirring of the soil in very dry weather helps the crops very materially.

HORTUS.

Hamilton.

TAMARISK AFRICANA.



HIS pretty June flowering shrub has a decidedly beautiful and unique appearance on a lawn, being so different in its habit of growth to any of our early flowering shrubs. Its long spikes of delicate pale pink flowers so densely produced have earned for it the fairy-like and

very appropriate title of the "Pink Mist Tree."

It is quite hardy in most localities in Southern Ontario; several fine specimens of it can be seen growing on lawns in and around Hamilton, one or two of which have flourished for nearly half a century, without



FIG. 1830.

SPRAYS OF AFRICAN TAMARIKS.

any protection whatever in winter. It requires to be pressed back rather severely at times, as its long, slender growth has a tendency to mount upwards, the plant often attaining a height of ten or twelve feet, if not checked in its towering career. But under any condition it is a very pretty shrub, and no collection of flowering shrubs should be without a specimen of the lovely "Pink Mist Tree."

The accompanying photo will give some idea of its heathery-like spikes of flowers and habit of growth; but no photograph could possibly do full justice to the beautiful effect that a large specimen of this plant has, when covered with its minute delicate pink flowers.

The *Tamarisk Chinensis*, that flowers in September, is also a very pretty shrub, with flowers of a deeper rose color than the African variety. Neither of these shrubs are as common on lawns as they deserve to be, as they grow and flourish in any fairly good soil, and require very little care and attention.

HORTUS.

HYBRID PERPETUAL ROSES.

OF the artistic merits of Roses of this strain, and their hardy excellent qualities, a true lover of the Rose never tires.

When the M. Victor Verdier came to us in 1863 it created a sensation, and it has stood the test of time nobly. Henry B. Ellwnger was famous for his select collections, and in his day prized the following as the most highly scented of the hybrids:

General Jacqueminot, Rev. J. B. Camm, Baron Prevost, Maurice Bernardin, and M. Victor Verdier. Perhaps "a flower by any other name would smell as sweet," but would it be as lovely?

But his list of the best dozen hardy sorts

we consider eminently superior, and every plot of ground should have just those varieties.

BEST DOZEN.

Anne de Diesbach, Alfred Colomb, Baroness Rothschild, Baron de Bonstetten, Fisher Holmes, Eugene Verdier, Marshall P. Wilder, John Hopper, Gen. Jacqueminot, Paul Neyron, Mad. Gabriel Luizet, Caroline de Sansel, Francis Michelon.

A good baker's dozen with proper protection; a foot of stable manure and a few boughs to hold the snow would be essential or prudent in states like Vermont and Canada. Although so many years have passed, these same

roses can not receive many additions. The French Rose, *La France*, of 1889, is one of the best now, and the crimson and yellow and white *Ramblers*—decided acquisitions in the list of climbers—doubtless will continue to increase in variety, and at length become fragrant. *Clothilde Soupert* is a glorious rose, and should be added to the above list, as also the *Dinsmore*. The *Soupert* now has two daughters—yellow and white. They are always in bloom, as is the *Dinsmore*, and are fine for out-door and in. *Mabel Morrison* is also a fine rose. If one can prolong the list add *Maria Rhoda*, crimson; *Eugene Verdier*, silver pink, *Baron Prevost*, rose; *Louis Van Houtti*, crimson-maroon; *La France*, rose and white; Many of these, the ever lamented *James Vick*, furnished me years ago, all proving true to his recommendation, and yet embalm his memory.

I love a rose for its fragrance, therefore the *Polyantha* roses have little charm for me. They stand the winters very well, and are a pretty house plant. *Pearl d'Or* and *Cecilia Bruner*, and *Little Gem*, are all I have been introduced to as yet. I say introduced, for when I see a lovely new rose for the first time, I am as delighted as if they were human.

The crossing of roses, and the grafting together of various sorts, make a new chapter in roses that has no end. Progression is now thoroughly stamped upon the florist,

and I am never surprised, but delighted, at their success. I look every year for new wonders, and always find something. Success to all in this heavenly enterprise, which no bad man ever follows as a trade, and which I hope to find glorified in the great hereafter.

The French Hybrid *Remontan*, or perpetual hybrid, will bear a second time if the flowers are cut off. The eyes next to the top will start and give a second flowering, making you rejoice as when a loved one is restored to health. A few tea roses lengthen the season if you have not the *Soupert* and *Dinsmore*. The two *Perrles de Garden*, *Metior*, Hybrid Tea, *Mad. Lombard*, *Child's Jewel*, the *Rainbow* and *Maria Von Houtti* and *Sunset* are desirable.

The Moss Roses are superbly lovely. The pure white *Blanche Moreau*, *Henry Martin* rose, and the new bright crimson scarlet *Princess Adelaide*, are well worth the dollar paid for them the first bearing season.

It seems one could go on and on about these entrancing flowers and never find a stopping-place.

Give your children a birthday rose of some hybrid sort, and see that they are replaced if ought happens to them, it will give lasting pleasure and infuse the love of flowers.

M. AGATHA HOSKINS.

Newport, Vt.

CLOTHES MOTH.—Prof. L. O. Howard, the U. S. Government Entomologist, reports the use of bisulphide of carbon against clothes moths. The clothes are stored away in a wooden chest. In the cover of the chest is a large auger hole with a sponge

tied immediately below it. In midsummer a few drops of bisulphide of carbon are poured through the auger hole on the sponge, and the hole is then closed with a cork; the fumes being heavier than air, sink down into the chest and destroy every living thing.



FIG. 1931. QUEEN CACTUS, IN YARD OF PHILIP MORSE, SAN DIEGO, CALIFORNIA.
(Nearly 15 feet high and 12 feet broad. The largest cultivated specimen in the world.)

THE CACTUS FAMILY.

ONLY those who have engaged in the cultivation of Cacti understand the fascination these curious spring plants have for the collector. There are the same conditions which make the pleasure in gathering together large collections of rare coins, stamps, shells and curios of all kinds—namely, difficulty of procuring the best and rarest of the particular class you are in search of. The “Cacti Crank,” as he is called, has a large advantage over collectors of most of the classes mentioned, in that his plants are constantly changing, growing larger and more valuable; rewarding patience with their beautiful bloom, and constituting a continual source of pleasure in their care and their capabilities of creating wonderful combinations by grafting, etc.

A great many people discard the Cacti on account of their slow growth and their inability to get them to bloom readily, but if the growth of a cactus is not so fast as that of a geranium it is sure, and what it makes one year it keeps and adds to the next, while the fast-growing plants are thrown out every

year and new ones purchased. The few plants of Cacti which are kept year after year thrive on their neglectful treatment and soon become an ornament, even when not in bloom. Everyone acknowledges that the flowers of the Cacti are among the finest in nature, and they richly reward the fortunate possessor of the plant, even if one has to wait an entire year for it.

But it is not the grand flowers they produce that is the incentive to the collector, but the multitudinous variety of forms and spines that are contained in the various headings under the name of Cacti. It could not be the bloom that creates the desire in a beginner's mind for more of the odd plants, because few of them have seen the lovely flowers, and the few small plants first obtained have not yet reached that period, but the fact remains that the “cactus fever” is contracted by making a small beginning, and then only the possession of more new varieties will satisfy the craving.

As each addition is made to the collection, it is carefully potted and watched till growth



FIG. 1832. CACTI.

appears, when it is usually safely established, and very likely some new oddity of spine on the new plant is so very different from anything yet obtained, that the desire for new ones is greater than ever, if it were only to

see what new variance is possible. The number of Cacti lovers is growing very fast, and there is quite a demand for new varieties. In some places where there are a number of fanciers, they run around from one house to the other, where there is always something new to show, either new arrivals or some rare specimen that is just in bloom. In Woodstock there are a dozen or more who have quite extensive collections, and they are a source of mutual pleasure which often brings their owners together.

To tell of the numerous families of Cacti would take too much space for one letter, but I will later on, if allowed space, try and give a short general description of some of them, in the hope of awakening a still greater interest in the strange genus. I would like to have the names of all the cactus collectors in Canada, for mutual benefit. In Woodstock the collectors have had a number of classes made for their plants, and added to the list of the Agricultural Society's fall show. They also have a large space at the annual exhibition of the Horticultural Society.

J. H. CALLANDAR.

Woodstock, Ont.

SWEET PEAS.

To grow Sweet Peas successfully the following rules should be observed :

Sweet peas should not be planted on the same ground after culinary peas.

Excessive manuring with stable manure in the row immediately before sowing the seed is not desirable. Ground intended for sweet peas if not left in good condition after taking the last crop will be better for manuring the previous fall rather than at the spring seeding.

The use of artificial fertilizers, the so-called "phosphates," bone meal, nitrate of soda,

etc., can be made in spring at the time of planting or soon after.

Thin sowing, by which is meant planting the seeds from four to six inches apart, is conducive to vigor and strength of the plants which come later into bloom, but continue much longer than plants from thick seeding.

Frequent stirring of the soil with hoe or cultivator in dry weather, thus producing a dust mulch, is preferable to artificial watering, unless irrigating facilities afford opportunities for a regular and abundant supply of water.—*Vick's Magazine*.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrears must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE UNITED STATES will make a fine apple exhibit at Paris. About 2500 barrels of apples have been sent forward, all the samples double wrapped, first with parchment butter paper, then with regular fruit wrappers, made of Manilla tissue.

PEACHES IN GEORGIA.—The Hale peach orchard in Georgia has about 300,000 trees; one block of 60,000 Elbertas is the heaviest loaded of all. Mr. Hale estimates that 8000 car loads of peaches will be shipped out of Georgia this year.

GRAPES.—The Dominion Government will not undertake the export of Canadian grapes, but the Hon. John Dryden has given us some assurance that he will forward several car loads during the season purely for experiment.

MR. WALTER STARK, English manager of the Imperial Produce Co., at Liverpool, who

made a success of the export of our dairy products, called on the 12th ult. He showed us a new patent glass jar for our cherries, peaches and plums, which he thought would be the right thing to use in packing for the English market. The processing would be exceedingly simple, and the goods properly put up and labelled would take the precedence of tin packages at once.

THE YORK IMPERIAL apple, which has been so highly spoken of in some journals recently as a good export apple, is hardly criticised by Bell in R. N. Y. in the following terms :

York Imperial seems to be more sensitive to curculio and other insects causing deformities in the fruit, than any other apple we have. There were no perfect specimens among them, while the Springdale apples, not far from them, were nearly all smooth. York Imperial seems to have a very tender thin skin, very much subject to scald too. We do not care for it either as dessert or cooking apple, the flavor is not to our taste.

COLD STORAGE TEMPERATURES for keeping fruit have been carefully tested at Dartford, England, and a few interesting points determined. Strawberries, currants and cherries, were all put in three compartments, so as to test the effect of temperatures between 26° and 40°. The best results seemed to result from a temperature of about 30°, at which point even strawberries were kept in good condition for three weeks, and cherries for a month, after which they began to wrinkle. To protect the fruit from the drying currents of air a covering was necessary, and paper and wool were tried. It was found that the fruit packed in the latter material were fresher and clearer than in paper.

EXPORT OF TENDER FRUIT.—Our committee has interviewed the Hon. Sidney Fisher with considerable encouragement. Mr. D. J. McKinnon, the chairman, reports that they were most cordially received; that the minister was most anxious to meet our wishes, and would endeavor to arrange with the steamship companies to guarantee certain limits of temperature, say between 34° and 38°, and failing in this to be liable for the damage so caused; that the fruits would be most carefully inspected at Montreal, and that two men who were well posted in Canadian fruit would be sent over to look after our interests.

COMPETITION IN HIGH GRADE APPLES.—Mr. A. S. Baker, of London, England, gave an interesting address before the Eastern New York Fruit Growers on the apple business. He said that the English apple market was supplied by the United States, Canada and Tasmania, and since the latter came at a time when the market was practically free of apples Canada and the United States were the only competing shippers. These American apples were the finest in the world, but brought the poorest prices simply because of the slip shod methods of packing.

They were not graded or sized, packed in barrels, and often poor stock was faced with first class; when such could be sold, it was dumped, and the whole sold at the price of seconds. This, he said, accounted for the low prices our apples brought in the English markets. The Tasmanian apples are shipped nearly 14,000 miles, through the hot climate of the equatorial region, and reach London rather dried up. Their flavor is not as good as the American apples. Yet they sell for better prices in the London market than the American apples. The Tasmanian apples are not barreled, but put in boxes 22 inches long by 11½ inches wide, and 10¼ inches high, outside measurement. They are carefully inspected and labeled, and sell on the strength of the label in the London market without inspection. Englishmen have a great respect for associations, and the stamp of a society or company would be much more quickly recognized than that of an individual. If shipped in boxes he advised putting a sheet of paper between each layer of apples. As varieties for the London market he recommended Baldwin, Ben Davis, Newton Pippin, Northern Spy, Greening, Russet and Jonathan.

APPLE GRADING AND INSPECTION QUEBEC FRUIT GROWERS.—The report of Committee on Resolution of the Quebec Fruit Growers' Association, with reference to the grading and inspection of fruits, makes the following recommendations:

1. That three grades for quality are sufficient.
2. That grade should be marked plainly on outside of all packages for export.
3. Grade marks to be uniform throughout the Dominion, and such as can be easily understood—

XXX	Highest quality.
XX	Second “
X	Third “
4. Fruit packed in standard cases, viz.,

half bushel or bushel cases, should have, in addition to the grade mark, the net weight or number of specimens of fruit contained in the packages.

5. Regular fruit shippers to be allowed to have a registered number or mark recorded at Ottawa, similar to the cheese factories.

6. Brand on outside of fruit package—

1 (c) Canada or Canadian.

2 (b) Variety of fruit.

3 (a) Grade of fruit.

4 (d) In boxes number of specimens or net weight.

5 Name or private mark of shipper.

7. Fruit inspectors to be appointed, who will have authority to open any package bearing a grade mark, and if the contents be not up to grade, the parties concerned to be prosecuted.

(Signed), J. M. FISH,
A. BRODIE,
R. W. SHEPHERD,

Committee.

Adopted at the annual meeting of the Pomological and Fruit Growing Society of the Province of Quebec, held on the 21st February, 1900.

W. W. DUNLOP,
Sec.-Treas.

OUR REPORT FOR 1899.—The following notice of our last report has just been given in the Mail Empire :

The Provincial Department of Agriculture has just issued the 31st annual report of the Fruit-Growers' Association of Ontario, for the year 1899, which will be found valuable by orchardists. It contains the proceedings of the annual meeting of the association, including many papers on a variety of horticultural topics, embodying the experience of some of the leading fruit-growers and practical scientists. Among those whose contributions appear are W. A. Whitney, E. C. Beman, A. H. Pettit, G. T. Powell, Dr. Harrison, Professor H. L. Hutt, Professor W. T. Macoun and Professor J. W. Robertson. The paper of the latter on "Commerce in Large Fruits" has a special interest in view of the attention now being directed to opening up a remunerative export trade in Canadian food products a subject of which the writer is specially qualified by his experience to treat. The principal difficulty in establishing this trade on a permanent and satisfactory basis has been the variable

and sometimes inferior quality and condition of the shipments owing to carelessness in packing and poor transportation. Professor Robertson reiterates the lesson that to hold the market and do a profitable trade it is absolutely necessary to have uniformly good fruit alike throughout the package, in sound condition, with good keeping qualities for the general consumer, and superior qualities for the class who are willing to pay extra for such. He gave an account of the results of trial shipments of pears, peaches and apples made by the Dominion Department of Agriculture, the experience gained affording many practical suggestions to fruit-growers and shippers. Mr. Pettit, in a paper on the same subject, urged the appointment of Government fruit inspectors to examine fruit destined for the British market, and the establishment of standards of excellence, in accordance with which the shipment should be classified as a guarantee of quality to the purchaser.

The subject of spraying was also fully considered, W. M. Orr, President of the Association, furnishing the details of extensive spraying experiments made under the direction of the Ontario Department of Agriculture at various points in the Province, and Professor Macoun presented the results of similar operations at the Ottawa Central farm. Experiments are now in progress at the farm to determine if possible the best time to whitewash the trees, so as to secure the best results. It is proposed to test this application as a remedy for the San Jose scale.

Dr. William Saunders' address on the market afforded by Manitoba and the North-West for Ontario fruit products, indicates the probability of building up an extensive trade in that quarter. Last season over 200 carloads of grapes were successfully shipped to the North-West, and a larger quantity could have been disposed of. Advice was given to fruit-growers to endeavor to secure this market. The report ought to be studied by all interested in the production or shipment of fruit, as it will be seen from the above partial summary of its contents that it comprises much practical information.

THE NOXIOUS INSECTS ACT.—In response to the request of our Association, through its Committee on the Codling Moth, the Ontario Legislature has recently passed the following Act :

1. This Act shall be known as *The Noxious Insect Act*.

2. The following provisions of this Act shall come into force and take effect as to every municipality the council of which shall by by-law declare this Act to be in force therein. The council may at any time repeal such by-law, and thereafter this Act and any regulations made thereunder shall cease to apply or be in force as to such municipality.

3. Upon the recommendation of the Minister of Agriculture the Lieutenant-Governor in Council may make such regulations for the prevention and destruction of insects injurious to trees,

shrubs and other plants as may be deemed advisable. Such regulations shall come into effect and have the force of law after publication in two successive issues of *The Ontario Gazette*.

4. Every municipal council adopting this Act shall in and by the by-law adopting the same appoint one or more inspectors whose duties it shall be to inspect all orchards and to enforce the provisions of this Act and the regulations made thereunder, and to report upon the same to the council.

5. In case the occupant or the owner of any lot neglects or refuses to comply with this Act or with any regulations made thereunder, the Inspector may cause the necessary work to be done, and shall within ten days make a report in writing to the Council stating the amount of the cost thereof, and the Council may thereupon direct that this amount or such part thereof as may appear to them equitable, shall be entered upon the collector's roll against such owner and shall be collected in the same manner as other taxes.

6. Immediately upon the passing of a by-law by any municipal council for bringing this Act into force, the said council shall cause to be delivered to the occupant or owner of every lot affected, a printed copy of this Act and of the regulations made thereunder, together with a copy of the by-law and the name and address of the Inspector appointed to enforce the Act.

7. Any person interfering with the Inspector, or attempting to hinder or prevent him in the enforcing of this Act, shall, upon conviction thereof, before any of Her Majesty's Justices of the Peace, be subject to a fine of not less than one dollar nor more than twenty dollars, and in default of payment of the same to be imprisoned in the common jail for the period of not less than ten days, nor more than twenty days.

ERRATA.—On page 213, Fig. 1820, shows Night Blooming Cereus, by mistake, credited to R. Jennings, should read "grown by W. C. Young," who also photographed the picture.

BLACK KNOT OF THE PLUM and rotting of the fruit have been found to be amenable to regular and thorough spraying in the orchards of the Hatch Experimental Station, Mass., with the result that most of the fruit has been saved, and the black knots few. Our native plum trees are reported

curculio proof, many of the varieties immensely productive; the fruit buds never winter killed; fruit not injured by brown rot; though inferior to the best European and Japanese, some varieties are of good quality and especially valuable for cooking; the trees not subject to black knot, but they are sometimes attacked by leaf-curl and the plum-pocket fungus.

D. W. BEADLE.

307 Given's St., Toronto.

THE SAN JOSE SCALE ACT has been amended by the Ontario Legislature so as to permit of the treatment of the infested trees under regulations made by Order-in-Council. This is also in compliance with the recommendations of our committee, in view of the excellent results obtained by the use of whale oil soap for the destruction of the Scale. The following is a copy of an Order-in-Council approved by His Honor the Lieutenant Governor, the 25th day of April, A. D., 1900:

Upon the recommendation of the Honorable the Minister of Agriculture, the Committee of Council advise that for the purpose of preventing the further spread of the San Jose Scale, the Department of Agriculture be authorized under the San Jose Act, 1900, to furnish owners of Scale infested orchards that are adjacent to such infestation, with whale oil soap suitable for spraying in barrel lots, at one half its cost, including freight, (being one and three-fourths cents per pound) on the following conditions, namely, that applicants agree:

1. To properly prune and prepare their trees for treatment.
2. To apply the soap under instructions to be given by the inspector in charge.
3. To make application to the Chief Inspector or such other person as may be named by the Department, stating the number and kind of trees to be treated.
4. To prepay the cost of the soap as per terms above stated.



QUESTION DRAWER.

Wheat in the Orchard.

1153. SIR,—A neighbor of mine who set out some apple trees three or four years ago, sowed wheat in the same field last year and now three-fourths of his trees are dead.

He attributes the loss of his trees to the wheat being around them. He also tells me that his brother-in-law sowed wheat in his orchard and some of his trees also died, and his neighbors told him that he would lose all his trees if he continued the practice.

Now is it known that wheat takes such an effect upon fruit trees, or has there been any such case brought before the notice of the Fruit Growers' Association before? Kindly reply through Canadian Horticulturist and oblige.—Yours respectfully,

Cobourg.

J. J. GORMLY.

The growing of wheat, oats or barley in an orchard is condemned by the best orchardists, because such grain robs the soil of phosphoric acid to an alarming extent, and because of the mechanical action of such crops in robbing the soil of its moisture. The weakened growth resulting seems to leave the trees most susceptible to the borer, and other evils, so that indirectly wheat growing may have caused the death of the trees referred to.

Treatment of Amaryllis.

1154. SIR,—Would you please give in the Horticulturist instructions for treatment of a white Amaryllis. I planted one last September and it has not made root yet. The leaves shot out, then died away. The bulb is large, hard and dry.

A SEAFORTH SUBSCRIBER.

The bulb referred to has probably been watered all the winter, when it should have been resting, or possibly the soil may have become sour for want of proper drainage. I would advise that the bulb be shaken out clean from the soil it is in, and all decayed roots removed. Repot the bulb into a mixture of equal parts of enriched loam and sharp, clean sand; pot into a comparatively small pot, a six-inch pot is large enough for a good sized bulb; use fully an inch of

broken pot at the bottom for drainage. The top of the bulb should be just above the surface of the soil when repotted. A handful of sand placed around the base of the bulb will help it to start root action. Water well once, and plunge the pot in coal ashes out of doors until fall, it will require very little water during summer, and still less in winter. For further treatment of Amaryllis see May number of Horticulturist for 1899.

Hamilton.

W. HUNT.

Dwarf Trees.

1155. SIR,—Can I make dwarf apples by getting one-year-old trees and training them to branch out near the ground?

Newburgh.

J. GAUDIER.

This would not be a proper method of making dwarf apple trees; for, as ordinarily grafted, the growth is too vigorous to be kept back by pruning. Dwarf apples are made by using a dwarf or slow-growing variety of apple, such as the Paradise or Doucin as stock, and in consequence the growth is checked and the tree bears earlier. For the commercial orchard, however, this is not advised in the case of the apple.

Planting Fruit Trees.

1156. SIR,—I intend to plant two or three hundred trees next year. Would it be best to buy in the fall and bury in the ground until spring. Would you recommend one, two or three-year-old trees?

Newburgh.

J. GAUDIER.

It only gives increased labor to buy trees in the fall and bury them until spring, and it is best to buy just when the trees are needed for planting, allowing them to remain out of the ground as little time as possible.

Apple, pear and plum trees are usually planted at three years of age from the graft, while the cherry is better planted at two years from the bud.

The Plum Scale.

1157. SIR,—I enclose you two small pieces of an apple tree from Mr. G. L. Hubbs, Picton, P. O., with scale, or insect, on the bark. A red insect seems to come from the scale, and when the scale is removed it leaves a white spot on the bark. Will you kindly give me any information you can about it?

Picton.

WALTER T. ROSS.

We have frequently had samples of this scale sent into this office, and it is quite common, both in this province and in New York state. It is so large as to be easily fought, either by scraping off and burning, or by spraying with whale oil soap. The following is from our volume for September, 1894, with the accompanying illustration :

This illustration is from a photograph of an infested branch of the Bradshaw plum. On the twig at the left are seen scars showing where some of the scales have been removed. The actual length and width of a full-grown scale is indicated by the cross lines in the illustration. The dimensions are usually about five millimeters by four—that is to say, about seven thirty-seconds by five thirty-seconds of an inch.

At the present writing, June 20th, the scales are filled with a whiteish powder, which, examined with a lens, proves to be composed of eggs. The young lice, which are produced from the eggs in the spring, had already issued from the old scales this season about May 10th, when my attention was first called to the insect. The branches were then covered with a sticky substance like honey-dew, evidently secreted by the young insects. On leaving the old scale they crawl over the branches till, finding a convenient location, they attach themselves to the bark. They seem to prefer a location



FIG. 1833.—BRANCH OF PLUM INFESTED WITH SCALE, *LECANIUM CERASIFEX*.

on the under side of the limbs. At first they whitish, or nearly transparent, but gradually assume the dark reddish brown color of the mature insect.

Mr. L. O. Howard, the United States Entomologist, to whom specimens were submitted for identification, states that it is a somewhat rare species known as *Lecanium cerasifex*. He advocates spraying with dilute kerosene emulsion when the young insects first appear in the spring. The scales are soft and can easily be brushed or scraped from the larger branches.

Whale Oil Soap as a Fertilizer.

CENTRAL EXPERIMENTAL FARM,
OTTAWA, May 14, 1900.

1158. SIR,—I have been asked to reply to the following question through the columns of the *Canadian Horticulturist*: "Can the whale oil soap used in spraying for San Jose scale benefit the tree in any other way than as an insecticide? Many orchardists state definitely that there is a marked effect upon the vigor of the tree, as shown by the color of the foliage and the improved appearance of the fruit, that can scarcely be attributed solely to the insecticidal properties of the soap."

Whale oil soap properly and honestly made will contain from 9 to 12 per cent. potash. This element, as is well known, is a valuable and important constituent of plant food, and especially so for fruit trees. It invigorates the vegetative growth and tends to the production of fruit with high flavor and good appearance.

It is not at all probable that there is any absorption of the potash from the soap spray through the bark or leaves, as some suppose; the potash, in common with other mineral foods, must be absorbed from the soil through the roots. If the potash in the soap is to act as a food to the tree it must follow the same course. It is not difficult to understand how this may readily take place, for sooner or later—probably within two or three weeks after spraying—the rains have washed off the soap and it has been received and absorbed by the soil in the immediate neighborhood of the roots. There it is gradually converted into compounds assimilable by plants.

We may now ask: Is there sufficient potash in the soap solution sprayed on the tree to make its value as a fertilizer worth considering? In making the solution for the San Jose scale, two pounds of soap are used per gallon, and probably two gallons will be required for a well grown, mature tree. Let us suppose there are 35 trees per acre. A simple calculation on the basis of 10 per cent. potash in the soap will show that the soil of each acre of orchard so sprayed receives 14 pounds of potash,

subsequently set free as plant food. This, though not a heavy application, would, in my opinion, be quite sufficient on many soils to produce a marked improvement. The usual dressing of the fertilizer, muriate of potash, is 100 lbs. per acre, equivalent to an application of 50 lbs. actual potash. Spraying with whale oil soap, therefore, it is seen, furnishes an amount of potash somewhat greater than one-fourth of that supplied when using the above named fertilizer in ordinary dressings.

FRANK T. SHUTT, C. E. F., Ottawa.

Violets Not Blooming.

1159. SIR,—Will you kindly tell me through your paper why a bed of "Maria Theresa" violets that I had planted last autumn in a cold frame have not flowered this spring? The plants are perfectly healthy, but no sign of bloom. Aspect southern, and well sheltered.

Toronto.

FLORENCE W. WADSWORTH.

The violets mentioned had not time, after being transplanted last autumn, to make and mature the growth necessary to produce flowers this spring. Allow them to grow on now undisturbed, as their healthy condition gives promise of a good supply of bloom next season. A south aspect is a very trying one for violets during July and August; partial shade, by placing over them some laths or slats of wood an inch or two apart, so as to break the direct rays of the sun and not exclude air and sunshine altogether, would be beneficial to them during the very hot weather. Give water liberally during summer. When necessary, violets should be transplanted as soon as the flowering season is over.

W. HUNT, Hamilton.

The Apple Box vs. the Apple Barrel.

SIR,—I enclose a cutting taken from the *Bridgetown Monitor* of the 18th inst., which may be of interest to you, and I should like to read your comments upon it in the next issue of *The Horticulturist*. The subject is a very important one, and if the facts are as stated by Mr. Baker, the sooner his suggestion is acted upon the better it will be for all concerned. The figures he quotes may be open to question, and I have seen it stated by dealers on the other side that for general use the barrel was the best package to use. What is your experience? Yours truly,

Annapolis, N. S.

E. D. ARNAUD.

Speaking upon American exports recently, at a meeting of the Eastern New York Horticultural Society, held in the city of New York, Mr. A. S. Baker, managing director of the International Cold Storage and Lightering Company, of Southampton, England made the following interesting references to this subject:

"You ask me what do I recommend. I say, abolish the barrel altogether. It will pay. Why? In the first place, you will save 20 per cent. of your freight rates. Now, you know on ships you do not pay for weight; you pay for measurement. The difference in stowing between a box containing one bushel of apples and a barrel is so great that you will save at the very least 20 per cent. cubic measurement, thus reducing your freight bills very considerably. There is another advantage about the box. The apples carry better; they get on to the market in better condition. They

"This same box that I describe, packed with such quality of apples as exist in this country, is uniformly worth on the London market fifteen shillings (\$3.75). Some of you will remember the returns, and say that you only get eleven shillings (2.75) for your barrels. Gentlemen, this is something for you to think over. Which do you want, eleven shillings for your clumsy barrel of apples, or fifteen shillings for your bushel box?"

In our opinion Mr. Baker's views on the great advantages of the apple box are to be taken with considerable allowance. The writer has now been using the bushel apple box for many years for exporting fancy apples to Great Britain, and expects to continue its use for special A No. 1 fruit. Our engraving

shows the box, one of them having cover removed to show the method of packing. Every sample is wrapped in thin manilla paper, assorted in to sizes by Wartman's grader, and each box contains apples of uniform diameter. Thus, 2½-inch apples will go four layers deep, four rows wide and eight apples long, to fill a bushel box of 128 apples.

Now this box is all right for such goods, especially for high-colored Spys, Kings, Cranberry Pippins, or any such fancy varieties; but it would be absurd to pack ordinary stock in these packages—such a course would injure the trade for fancy stock, increase the number of packages to handle, and lessen the net profits.

Many people ride hobbies, and ride them to death; and we are inclined to think Mr. Baker is a little inclined that way. For ourselves, at all events, after using boxes for ten years for export to England, Scotland and Australia, we intend continuing to use the barrel for ordinary stock.

To Kill Tree Roots.

1160. SIR,—What compound or solution of strong and simple nature should I use to permanently eradicate tree roots (Lindens and Maples)? My plants last year were a failure owing to these infested and annoying roots.

Windsor.

R. V. COVENTRY.



FIG. 1834. APPLE BOXES.

are altogether more salable. A box measuring 22 x 11½ to 10½ outside measurement will contain 50 lbs. of apples—or one bushel, English standard. The apples can be all wrapped in paper. There is no danger then of contamination from a bad one. There is another thing I will tell you. Apples, when stored away on board ship, contain a considerable amount of latent heat which manifests itself in the middle of a barrel, and, no matter how honestly you pack the barrel, the middle will never open as bright as the top or bottom, owing to this heating on the way. With a box this need never happen; when the box is properly made, it never does. Those who have to handle freight can handle a small box better, and with more care, than a barrel. The danger of bruising is reduced to a minimum, especially with the use of paper around each apple. You ask then, but will it pay us to go to this extra trouble? That is for yourself to decide.

If your correspondent refers to the superficial roots of living basswood and maple which often run to some considerable distance, and hence disturb other plants, I may say that I know nothing better than digging and cutting them out. There is nothing that will prevent the roots growing so long as the trees are alive. It is part of the nature of the root to send its branches wherever they can find nourishing matter—food and water.

If the roots are already dead, then again uprooting is the best remedy. Some advocate the use of coal oil or sulphuric acid. These are undoubtedly potent, but the spade and axe remedy is the simplest.

O. A. C., Guelph. W. LOCHHEAD.

Rocky Mountain Cherry.

1161. SIR,—Can you explain why I never get fruit from my Rocky Mountain cherry tree?

Anagance, N. B. C. STOCKTON.

In answer to S. Stockton, Anagance, N. B., I would suggest as the probable cause of the flowers of his Rocky Mountain cherry not setting fruit, that the flowers are not perfect. If he procured some scions from a Rocky Mountain cherry known to be self fertile and grafted them on his trees, he might be able to get some fruit.

C. E. F., Ottawa. W. T. MACOUN.

Exhausted Calcium Carbide as a Fertilizer.

1162. SIR,—Kindly give in your next Horticulturist some information as to the application and value as a fertilizer of exhausted calcium carbide as taken from the generator of an acetylene gas machine?

Hagersville. S. W. HOWARD.

The waste product from the acetylene gas machine is practically slaked lime. If the carbide has been manufactured from lime free from metallic sulphides, as iron pyrites, the by-product from the machine may be applied directly to the land. As, however, it is apt to contain sulphur compounds (which are injurious to vegetation), it is well to expose it in small heaps on the field for a

few weeks before mixing it with the soil. This exposure corrects and renders harmless the sulphur compounds.

There are very few soils that are not benefited by an occasional application of lime, say 20 to 40 bushels per acre every fourth or fifth year. For those that are peaty, sour or naturally deficient in lime, this waste product should especially prove a valuable amendment.

FRANK T. SHUTT,
Ottawa. Chemist Dom. Exp. Farms.

A Disease of Wax Plants.

SIR,—I send you herewith two leaves taken from a Hoya Carnosa. The plant is very large, covering a frame about 4 ft. x 8 ft., and was, until very lately, quite healthy looking. I would like to know if it is possible to do anything to stop this apparent blight or whatever it is. Have you ever seen leaves of the Hoya affected in the same way? Can you tell me what it is? I thought when I first saw the spots that it had been some drops of water on the leaves and scalded with the sun, but I do not think this is the cause. I send two leaves, on the large one you can see the blight in the first stages, and on the smaller one the affected parts have lost all substance. The plant is standing in a square bay window with an east and south exposure. As I feel anxious about the plant I would like to hear from you at your earliest convenience.

H. B. SPROAT, Woodstock.

The disease affecting the wax-plant (*Hoya carnosa*) leaves is not a common one. It is due to the presence of a fungus called *Alternaria*, a genus allied to *Cercospora* and *Macrosporium*, which affect the tomato and other plants. The mycelium of this fungus lives in the soft cells of the leaves, and spreads with great rapidity. At first the spots are but slightly affected, and resemble the results of sun-scald on drops of water sprinkled on a leaf, but later the area of diseased part widens, and the tissues begin to rot. The margin of the area is very distinct. Cultures of the fungus were made in the laboratory here, and a fine crop of mycelium and upright stalks, bearing conidia, was obtained. Fig. 1835 shows very clearly the form of the threads and the conidia. The latter are flask-shaped, and frequently united

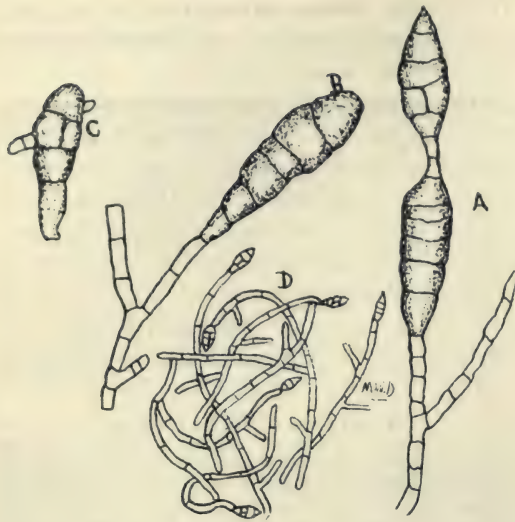


FIG. 1835. FUNGUS AFFECTING HOYA LEAVES.

Alternaria Sp. on leaves of *Hoya*.
 A B C, magnified $\times 450$ (camera lucida).
 A and B, showing shape of gonidia.
 C, a germinating gonidium.
 D, goniophores—from a pure culture in gelatine.

in chains, as shown at A, and connected by narrow necks. Each conidium is divided by partitions into several cells, and the threads of the mycelium are velvety. The full life-history of this fungus, however, is not well known.

Remedy.—All diseased leaves should be collected and burned, so as to prevent the further spread of the disease. Spraying with a weak solution of Bordeaux Mixture will act as a preventive of further spread.

W. LOCHHEAD.

Biolog. Dept., Ont. Ag. Coll.,
 April 11th, 1900.

Open Letters.

Improved Cuban Queen Watermelon.

SIR,—The old Cuban Queen Watermelon has long been recognized as the leading shipping and commercial melon of the country. We have a sport of this melon that far supercedes the old Cuban Queen. The new melon is the admiration and wonder of all who see it, as it is a third larger than the old variety, and for sweetness and delicious flavor it stands unrivalled. In fact melon growers of varied experience pronounce it the greatest watermelon ever grown. Single vines perfect six to eight melons, averaging in weight from 75 to 120 lbs. The seeds of this melon are brown; the flesh the most vivid crimson red, melting and sugary. The vines are rampant, vigorous growers, and very healthy. This is the melon for the millions, as it succeeds on all soils.

We have tried all melons as fast as they originated, and were disseminated. But none equals this new melon.

S. L. WATKINS.

Lotus, Cal., March 21, 1900.

Benson's Hybrid Muskmelon.

SIR,—An entirely distinct and new hybrid melon, claimed to be a cross between a Pomegranate melon and Netted Gem. This rare melon combines the fragrance and beauty of the Pomegranate, and has the size and quality of the Netted Gem. This melon is enormously prolific, good specimens weighing three and four pounds. It is somewhat oblong in shape and very solid. In color it is a rich orange, striped and mottled with

gold. The great value of this melon lies in its preserving qualities, not being excelled by any known melon. The flesh is snow white, quite solid and most deliciously flavored, being quite spicy and aromatic. The preserves made from this source are excellent and quite easily made. For crystalizing, it is one of the finest fruits known. The garden lemon and vegetable peach cannot be compared with it, as it far excels them in all respects.

Lotus, Cal.

S. L. WATKINS.

The Largest Apple in the World.

SIR,—My attention has been drawn to an article in your paper (February number), that a Gloria Mundi apple, exhibited at the Indiana State Fair, and which weighed $23\frac{1}{2}$ ounces, was claimed to be the largest apple in the world, but which I can prove was not.

In the fall of 1899, I bought from Mr. W. G. Watson, of Dixie, among other apples, about ten or twelve bushels of Kentish Fillbaskets, and with a representative of the largest wholesale grocery in Canada, we weighed several of the apples. One, the largest, weighed $25\frac{1}{2}$ ounces, and several weighed over 20 ounces. In fact the whole lot averaged the largest apples I have ever seen. I might also add that my customers unanimously declared them to be excellent cooking apples, and I had numerous enquiries for them long after I had sold out. Yours truly,

Toronto.

E. LUTTRELL.

P. S.—We neglected to measure the circumference.

Our Affiliated Societies.

COBOURG.—Major H. J. Snelgrove has been prominently identified with the Cobourg Horticultural Society since its organization took place in 1897, when he was elected secretary. The success of the society is largely due to such enthusiastic directors as President J. S. Hayden and Secretary Snelgrove, who by their selection of many new varieties of fruits and flowers have made valuable acquisitions to Cobourg's beautiful gardens.

Major Snelgrove is decidedly of the opinion that the most useful function of the Horticultural Society consists in the importation and introduction of new specimens of hardy flora, whose superb merits are comparatively unknown to the majority of our "native born" florists. Here there is a grand field for original exploitation—more especially in the perennial plant and ornamental shrub classes—containing scores of foreign varieties, suitable for Canadian cultivation, whose splendid qualities have only to be propagated to be appreciated by every one.

The Horticultural Society is contributing materially towards making the pretty port of Cobourg "a thing of beauty and a joy forever" to the hundreds of southern visitors who throng its fine "old Ontario strand" during the summer season. Already its handsome streets and leafy avenues, its spacious pleasure grounds and velvety lawns, its faun-enticing parks and gardens, and its amphitheatre of vine-clad hills and orchards, render Cobourg distinguished among the most progressive communities of our beloved Ontario.

In civic life Mr. Snelgrove is governor of the gaol for the united counties of Northumberland and Durham—an extensive and populous municipality. He has received the highest honors and filled the highest seats in the grand bodies of several large fraternal orders, having just completed his term of office as President of the Canadian Fraternal Association—a congress of all the principal beneficent brotherhoods represented in this Dominion.

GRIMSBY.—The most successful floral exhibition ever held by our society took place in the Town



FIG. 1836. H. J. SNELGROVE, MAJOR. Q. M., 40TH BATT.,
SECRETARY COBOURG HORTICULTURAL SOCIETY.

Hall, Grimsby, on the evening of May 11th. A nearby lumber mill put up the tables on Friday morning, and removed them at the close for about \$1. A drayman collected and returned all the plants, getting nearly all to the hall by Friday noon for about \$4, a committee having previously solicited them and labeled them with the owners' name. The committee of arrangements completed their work about 4 o'clock, and the judging was completed about 6 p. m. At 7 o'clock the public was admitted on payment of an entrance fee of 10 cents each. There was an attendance of at least 200 people, which was fine

for a village society. Music was provided during the whole evening by Weaver Bros., with a banjo and piano, for \$4.00. As an encouragement to the exhibitors, a dozen fine plants were given as premiums. It was felt that this was quite in accord with our work and was not open to the same objection that exists against money prizes. Among these were a beautiful hanging basket of lobelia, a fine rubber tree, a fine blooming plant of hydrangea otaksa, a large Kentia palm, etc., etc. During the evening we also had two songs from the Grimsby Male Quartette. At the close of the evening the plant distribution was made, each paid member receiving from the Fruit-Growers' Association a golden prolific plum tree and a wistaria, and from the Grimsby Society a Kentia palm, a Japan ivy and three lily bulbs. The receipts more than covered all expenses, and many persons, seeing the good things given each member, united with our society.

E. H. READ, Secretary.

OUR BOOK TABLE.

THE FARMSTEAD.—Among the many new books relating to the farm that have come to my table during this book-writing year, none appears more attractive, and certainly none bears a more suggestive title than the above. This is written by Isaac Phillips Roberts, Director of the College of Agriculture, Cornell University, New York.

It will be remembered that Prof. Roberts was the first Instructor in Agriculture in the Iowa Agricultural College, and for this reason the book is of special interest to Iowa readers. It is a companion volume to Prof. Roberts' former highly successful work, "The Fertility of the Land," where the management and the tillage of the soil was the central theme.

The Farmstead opens with a strong plea for fuller appreciation of rural homes; country and city life are contrasted and the advantages and disadvantages are set forth impartially. After discussing "The Farm as a Source of Income," "The Educational Opportunity on the Farm," "Selection and Purchase of Farms," the very practical questions of "Laying Out the Grounds," "Building the House," "Finishing and Furnishing the House" are all taken up and discussed in detail. This part is valuable on account of the practical knowledge and long experience as a builder and trained carpenter of the writer. A well written chapter is that entitled "Household Administration, Economy and Comfort," by Prof. Mary Roberts Smith, Prof. Roberts' daughter. "The Home Yard" is written by Prof. Bailey in his usual suggestive and attractive style. The barn, outbuildings, fences, cisterns are all treated under separate heads and in an exhaustive manner.

The volume will be found full of information upon many points upon which at present we do not seem well supplied with books and reference. It forms a part of the Rural Science Series published by the MacMillan Company, New York, and is retailed at \$1.25. JOHN CRAIG, Iowa Agricultural College, Ames, Iowa.

The wise and active conquer difficulties by daring to attempt them; sloth and folly shrink at sight of toil and hazard, and make the impossibility they fear.

Ask your grocer for

Windsor Salt

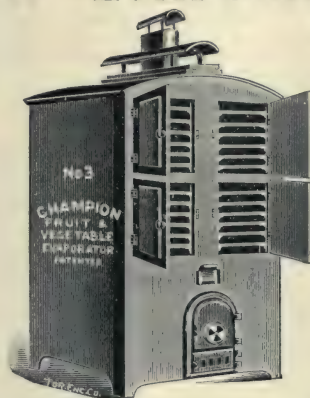
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EAR TAGS . . .
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Photo by Miss Brodie

FIG. 1836. THE KITTATINNY BLACKBERRY.

THE CANADIAN HORTICULTURIST



* * JULY * *

THE KITTATINNY BLACKBERRY.

SOON after its first introduction the writer had a plantation of Kittatinny blackberries at Grimsby, Ontario. The old Lawton had been the commercial variety there for many years, the first plantation of that variety having been made away back in the sixties by Mr. Chas. Woolverton, but it quickly gave place to this new introduction. How little we knew about blackberry cultivation in those days, when, instead of pruning the top into reasonable form, we tried a trellis to keep up the branches, and nevertheless the projecting limbs caused sore punishment to man and horse when working among them. The Lawton was a pretty good market berry, but though it turned black enough to sell on the market, its hard core never seemed to be ripe enough for eating.

It was indeed an agreeable change to grow the Kittatinny with its large shiny black berries, ripe through and through, and most excellent, either for eating fresh, or with cream and sugar at table, or in pies. It was early in the eighties when we first began shipping this variety into Toronto, where it was handled for us by Mrs. Bilton who kept a high-class fruit and game store

and who sometimes sold it as high as 23 cents a quart. Those were the palmy days of fruit growing, when grapes brought 8 to 10 cents a pound, and currants about the same, and yet no one of us seemed to think it worth while to extend our plantations. Now the blackberry brings only from 6 to 10 cents a quart, and we are planting by the acre.

When the peach fails the blackberry is in great demand, for it is of the same season, and the thrifty fruit grower will try to be prepared for such an emergency. It is useless, however, to plant Kittatinny plants too freely outside the peach belt; for it is not very hardy. Better success will be had with the Synder, which is very hardy, enduring even the climate of Algoma, and producing wonderful crops in the Muskoka district, although it is neither so large, nor so beautiful as the Kittatinny.

The orange rust is a serious disease affecting the latter while, strange to say, we have never yet seen it upon other varieties of blackberries, no doubt because their foliage is more vigorous and more resistant to attack. This rust (*cœoma nitens*) is exceedingly difficult to destroy because it

lives through the winter on the underground stems, and while the spores may be killed with Bordeaux the vegetative portion is out of its reach. The accompanying engraving shows a section of an affected leaf, *a a* the epidermis of the lower side ruptured by it and exposing to view at *b* a mass of golden colored spores, each of which is capable of

Technically we would describe the Kittatinny for Ontario as follows :

ORIGIN—Kittatinny Mountains, N. J. ; found growing wild by a Mr. Woolverton in 1874 ; but not much disseminated until many years later.

PLANT—Very vigorous, but tender outside of the peach belt ; productive ; pro-

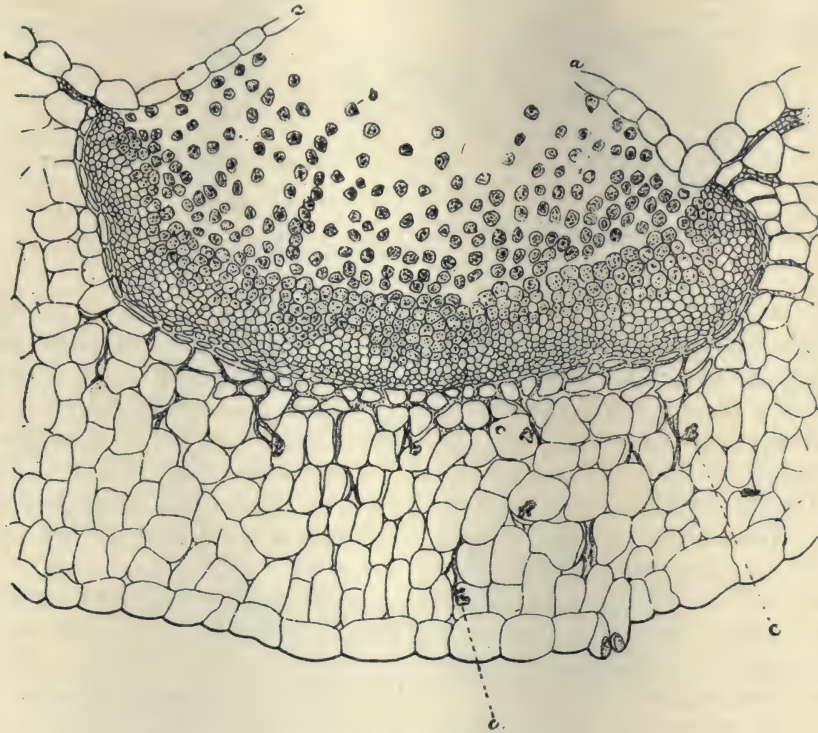


FIG. 1837. ORANGE RUST.

conveying the disease to other plants ; *c c* represents haustoria by means of which the fungus draws nourishment from the cells.

In setting blackberries the rows should be not less than eight feet apart, and the plants three feet apart in the row, though if plants are plentiful, they may be set one foot apart in the row. Every spring the last year's fruit canes should be cut back a little to permit cultivating and fruit gathering, while the new growth will grow above and shade the fruit.

pagated by suckers, and by root cuttings ; very susceptible to the Orange Rust.

BERRY—Large, averaging about $1\frac{1}{2}$ inches in length ; oblong, slightly conical ; shiny black when ripe, becoming gradually duller after gathering ; flesh, moderately firm, sweet, rich and excellent.

SEASON—July 25th to August 25th.

QUALITY—Good for dessert ; good for cooking.

VALUE—First-class for home market.



FIG. 1838. IRIS BED AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

CENTRAL EXPERIMENTAL FARM NOTES—IX.

THE weather during the latter part of May was cool and showery up to the 19th, when it became warmer, the temperature being 18°F., 82°F. and 83°F., on the 26th, 27th and 31st. Rain was beginning to be needed by June 1st, but on the 2nd about 1½ inches fell, which did much good. As the weather has continued warm since then, growth has been rapid. The warmest day so far this month was on the 6th, when the temperature was 84°F. No frosts have occurred during the past month.

The blossoming season of apples, plums, pears and cherries was very favorable this year, the weather being bright and warm, as a result of which these fruits, as a rule, set well. There were exceptions, however. Cherries only set fairly well, and there will not be a heavy crop of any of the varieties fruiting here. The severe frosts which occurred here on the 10th and 11th May probably did more injury to the apple and cherry blossoms than was at first supposed. Among the apples, several varieties growing in

sandy soil, but apparently quite healthy, did not set much fruit, although the trees bloomed freely. As records are kept of the approximate amount of blossom on each tree and records of the yields from these trees, also, we hope soon to learn the various causes of their unfruitfulness. It may be from lack of certain plant food ; from some disease, not apparent ; from frost, or from self-sterility, but, there being plenty of opportunity for cross-fertilization where so many varieties are growing in close proximity, the last cause suggested is not likely the true one. The trees of the Wealthy and Duchess are particularly well loaded with fruit this year. The McIntosh Red apple, which is one of the most satisfactory trees to grow in this part of the country, is an annual bearer at the Experimental Farm. It never fruits heavily, but each year there is a medium to good crop of fine apples, which are all the better on account of the tree not over-bearing. The hardiest apples have set fruit best in most cases.

The pears are making good growth this

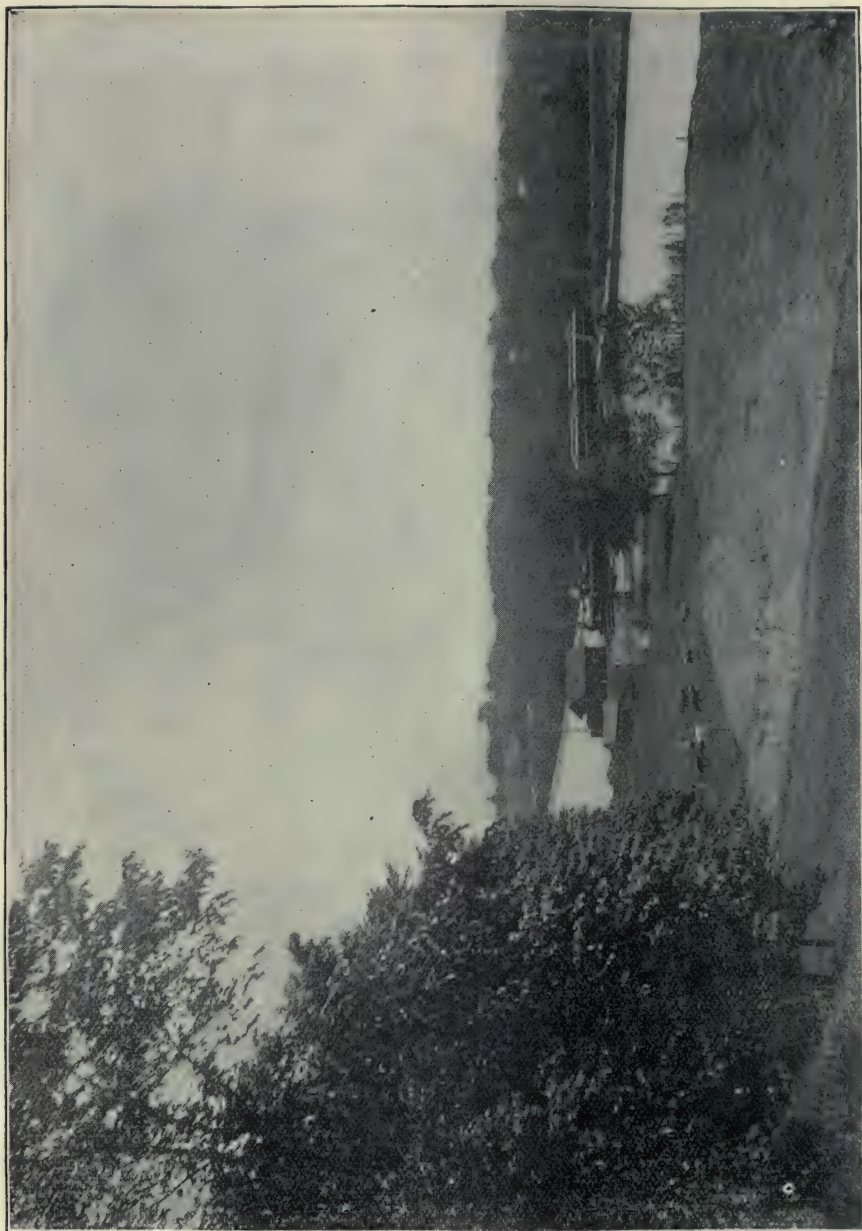


FIG. 1839. VIEW IN ARBORETUM, CENTRAL EXPERIMENTAL FARM, OVERLOOKING RIDEAU CANAL.

year, and quite a number of varieties are fruiting, though most of them are of Russian origin and inferior in quality. A tree of the Flemish Beauty, however, which has been in the orchard for ten years, is bearing this year. It bore, also, two years ago. The pear orchard has been almost free of blight for several seasons.

Plums set well, on the whole, and a good crop of the American varieties is expected. A few European sorts are also bearing this year.

A plentiful crop of strawberries is also anticipated, the rains which we have had recently being especially favorable to that fruit. The Warfield is apparently one of the hardiest varieties of strawberries grown, and, taking everything into consideration, few varieties excel it for a shipping berry. It, however, becomes rather small if more than one crop is taken from a plantation, and being a pistillate variety requires to be fertilized by some other sort. The Glen Mary, which has succeeded well in many parts of Canada, promises to produce a good crop of berries this year. The Wm. Belt, which is an excellent strawberry in many respects, does not appear to be quite hardy enough in all locations here. Both last winter and the winter before, it suffered considerably at the Experimental Farm ; its irregular shape also is against it. On the comparatively light soil here, Clyde did not make many runners last year, and the crop from it will not be as large as if it were on heavier soil.

Under the system of treating the orchard at the Central Experimental Farm, the cover crop of common red clover is now ready for cutting the first time. The crop is very heavy, the clover being from 22 to 24 inches in height and just showing flower buds. As mentioned in a previous number of the Horticulturist, the apple, pear and plum orchards have not been cultivated during the past two seasons, nor this year. Most of the soil in the orchards is a light moist sandy loam,

surface of which is easily moved by the wind. Cultivation in these orchards gives the wind an opportunity of blowing the soil, the result being that the roots of the trees are liable to be bared, or nearly so, and the trees are thus more likely to suffer both in winter and summer. Since an almost continuous cover crop has been maintained, the trees are becoming more vigorous. The following plan is adopted : Two-year-old clover is ploughed under in the spring, the land harrowed and clover re-sown without a nurse crop at the rate of 12 lbs. to the acre, after which the land is rolled. During the summer it is cut a couple of times with a field mower to prevent weeds from going to seed, and a cover crop of clover from 10 to 12 inches high is left in the autumn to hold the snow and protect the roots of the trees. The following summer, this same clover is cut from four to five times with a field mower and the crop left to rot on the ground. By cutting the clover each time before it blooms, the vigor is maintained and the fourth crop is usually still a heavy one. In 1898 when the amount of green clover cut was approximated, it was found that more than 25 tons per acre were left to rot on the ground in one season. In 1899 the crops were as good, or better than in 1898, and this year the first crop is better than either in 1898 or 1899. As red clover is a biennial, a large proportion of the plants kill out the second winter, and on this account, partially, it is ploughed under the following spring and re-sown as previously stated. While this system is not recommended to orchardists who may have conditions which would render it unsatisfactory ; for instance, where droughts are of common occurrence, or where the soil is dry, it is giving good results under the conditions at the Central Experimental Farm, and will be continued until bad effects are noticed ; fertilizers to balance the food supplied by the clover being applied from time to time as deemed necessary.

The German Irises make a fine show during the month of June. A very large collection has been brought together at the Experimental Farm, and they are the delight of all who see them. There are such a large number of varieties of exquisite shades and markings that it is difficult to choose a limited number which would be suitable for a small garden. Among the best, however, are Mad. Chereau, Darius, Gisele, Mrs. H. Darwin, Coquette, Ossian, Walneri, Lord Seymour, Sappho, Prinz Frederic, Marginata, Jacquesiana.

In July and August the annuals are so plentiful that perennials often take second place, but if one has a good collection of Pæonies, Japanese Irises, Lilies and the Hybrid Perennial Phlox, he can have a

good show of flowers. There are other good perennials, however, which bloom in July, among which being the Cashmerian Larkspur, (*Delphinium Cashmirianum*), Showy Fleabane (*Erigeron speciosus*), Infant's-breath (*Gypsophila paniculata*), Autumn flowering Sneezewort, (*Helenium autumnale*), large flowered Chinese Bellflower (*Platycodon grandiflorum*), Caucasian scabious (*Scabiosa Caucasica*), Meadow Sweet (*Spiræa Ulmaria*), Queen of the Prairie (*Spiræa Venusta*), Broad-leaved sea lavender (*Statice latifolia*), Aster, Amellus bessarabicus, and the fine Rudbeckia, Golden Glow, which begins to bloom about the last of the month.

W. T. MACOUN,

Horticulturist.

Central Experimental Farm.



FIG. 1840. LARGE FLOWERED SYRINGA AT C. E. F., OTTAWA.

SHADY NOOKS FOR SUMMER DAYS.

ANYTHING which adds to one's comfort during the warm weather is welcome, and as the life in our climate during the summer months is largely an outdoor one, any bit of shade which Nature or art may provide to temper the rays of the sun is welcomed. The ideas illustrated on this page may all be carried out at slight expense.

The illustrations for crows' nests suggest places where one may retire with a favorite volume. If the climb into these retreats is too venturesome for the older members of the household, they will afford much enjoyment for the younger ones. Of course the proper trees are necessary, and as no two are alike the



FIG. 1841. A LOFTY CROW'S NEST.



FIG. 1842. A SHADY SEAT AT THE TENNIS COURT.

carpenter will have to adapt his construction to the enforced requirements of size and growth.

In the arrangement for the shady seat at the tennis court, rough cedar posts are planted firmly about eight feet apart, three feet below and seven feet above ground, and a framework is built across at the top, and a double seat with back constructed between. The framework at the top should come forward four and a half feet from the end parts on each side, making the top nine feet over all. A series of hoops is carried along one foot apart, giving a curved top. The brackets for this top and the arms and legs of the seat may be made from rough limbs with the bark left on. The same material is used for braces. If gnarled limbs can be obtained for these all the better, but the framework is of secondary importance as it will be covered with vines by the middle of the summer.

A more simple mode of construction would be to make the top flat. For this use straight pieces instead of hoops. The effect will be less picturesque, but when covered with vines it will make but little difference. If possible face the seats north and south, as more shade will be obtained from the ends when the sun is low in the afternoon.

Often shade is needed at some special point on the lawn, and the illustration given of a summer-house with a double-domed roof and two circular seats offers suggestions for that purpose.

In the arrangement for this summer house six corner posts are planted. Of course, the size of these bowers must vary according to individual needs, but they must not rise too high above ground. They will be useless for shade if carried up more than eight feet.



FIG. 1843. A SHADY RETREAT.

Centre posts rise to a height of eleven feet, and long hoops are carried diagonally from corner to corner. These are firmly nailed to the centre posts, on which they cross. Straight pieces are carried around horizontally from post to post; these are supported by brackets. The hoops may also be connected by light stuff. A seat is constructed around each centre post, and a light railing runs around these sides. At the base the entrance is generally left free of adornment of any sort.

Many vines which flower lovers would like to use are worthless for



FIG. 1844. A SHADED DOORWAY.

the purpose of shade. The sweet pea would be a general favorite if it grew to a sufficient height, but it does not. The morning-glory and the wild cucumber are both desirable. The former will grow to a height of twenty feet in a season. The wild cucumber also has



FIG. 1845.
A DOUBLE-DOME EFFECT.

a rapid growth, and its flowers when seen in masses are very effective; it is to summer plants what the native clematis is to our perennial vines. Some of the ornamental gourds are available for covering summer houses, their large leaves overlap and afford a dense shade, which is, of course, indispensable in a summer-house. The variegated Japan hop will answer for the purpose of shade; it has a rapid growth and an attractive foliage.

An illustration which needs little description is the one in which an old sketching umbrella frame is utilized for the canopy at the top of the centre post, or constructed of a large wooden hoop supported on a wire properly bent. A pot is set on or in the post on each side, and a ladder-like framework of light sticks connects them with the canopy. If desired, wooden boxes may be built in place of the pots. In fact, it would doubtless be a wiser plan to use boxes as they may be nailed securely to the posts. The centre post must be carried up to a height of seven feet so that it may be passed beneath without chance of brushing the hat of one's tallest guest. Paint in harmony with the house. Nothing will be so pretty



FIG. 1846. A SHADED TURNSTILE.

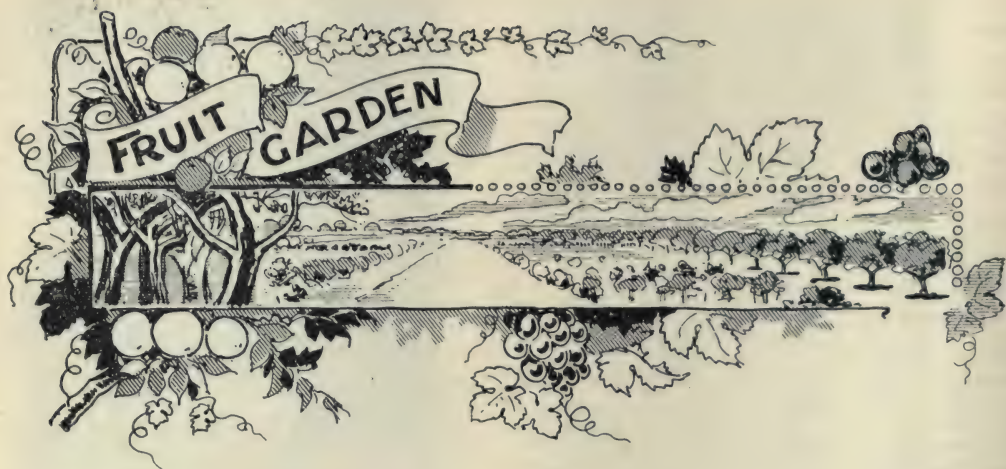


FIG. 1847.
A
CANOPY
FRAME.

or so attractive to plant about this gate as nasturtiums.

Very often the entrance to a house lacks a canopy or porch, in which case the arrangement shown in illustrations show two light canopy frames, which, when covered with vines, will afford a grateful shade. A feature of one is the shelf for potted plants. Brilliant geraniums are especially effective for the purpose, their glowing blossoms fairly burning against the dark green of the grape vine's broad foliage. When constructing the simpler one bring the brackets down toward the base of the doorposts. The doorway may be flanked with cacti or other plants of a decorative character.

For planting a door having a canopy I would advise *Celastrus scandens* or *Ampelopsis*. The native grape may also be used. All three of the above are attractive and nearly always prove satisfactory.



FRUIT CULTURE.—VI.

THE PEAR.

THIS excellent fruit, so generally and deservedly esteemed, should always secure a prominent place in the orchard of the commercial grower and in the amateur's garden. By a judicious selection of varieties fruit can be enjoyed from August to January. It was one of the few fruits successfully marketed in England in 1898, and a profitable trade in that direction might be built up if the right varieties are grown and the packing carefully done.

SOIL.—The soil conditions favorable for the apple are equally favorable for the pear. On a wet soil it will soon become diseased and sickly. As long as the subsoil is fairly porous and dry the tree will thrive and produce fruit of excellent quality on moderately heavy clay. In short, if the drainage is good and the ground tolerably rich the pear can be successfully cultivated in almost any soil from sand to clay, though a strong clay loam may be regarded as the best type of soil.

SELECTION OF TREES, PLANTING AND PRUNING.—There are two types of pear trees com-

monly grown—standards and dwarfs. With the standard sorts the variety is grafted or budded on pear stock, and trees of this kind will last a life-time. To render the tree of a dwarf habit the quince stock is used. This allows of a much closer planting, twelve or fourteen feet apart, while the standards should not be nearer than twenty. The quince stock creates an early bearing habit, but the tree is comparatively short-lived. Some varieties succeed better on quince stock; even the flavor improving. The most notable are *Duchess d'Angouleme*, *Beurre Diel*, *Easter Beurre* and *Louise Bonne de Jersey*. Two-year old trees are decidedly preferable to three for planting; the root of the pear is not very fibrous at any time, and, as trees are usually dug in the nursery (see Figs. 8, 9, 10), the older the trees the less of the fibrous roots left. Planting has been fully described already. Figs. 36, 37 illustrates the manner of pruning back the newly set standard tree. As the limbs of the pear have a more upright habit of growth than those of the apple, the head may be started somewhat lower, and the shading of the



Pear tree.



The same pruned.



A bad-formed tree.



The tree pruned.

trunk will lessen the danger of sun scald. The subsequent pruning of the pear consists in thinning out the head, removing any lower sprouts and shortening any very rampant growths. In pruning back these strong twigs cut close to an outside bud, the tendency being then to grow a more spreading top. Dwarfs are grown on the pyramid system or the "inverted cone" plan, usually the latter. The head should be started lower and pruning be constant and systematic. Fig. 38 represents a tree cut back in the second year, a well branched head and no bad crotches. Fig. 39 exemplifies a poor type of dwarf pear, where sufficient care has not been given to the formation of the head. A better type is seen in Figs. 41, 42, and the requisite pruning clearly indicated.

The manuring and tillage of the pear orchard should be similar to that of the ap-



FIG 38

DWARF PEAR
2ND YEAR
BAILEY

FIG 41

A Duchess dwarf
pear, four years set.

FIG 42

BAILEY

The tree
pruned.

ple orchard. Cultivation should be kept up late with young trees or a rank growth is induced, especially on rich soils, in which the wood may fail to ripen, and winter killing and blight will probably result. Old trees of the "choke-pear" variety may be



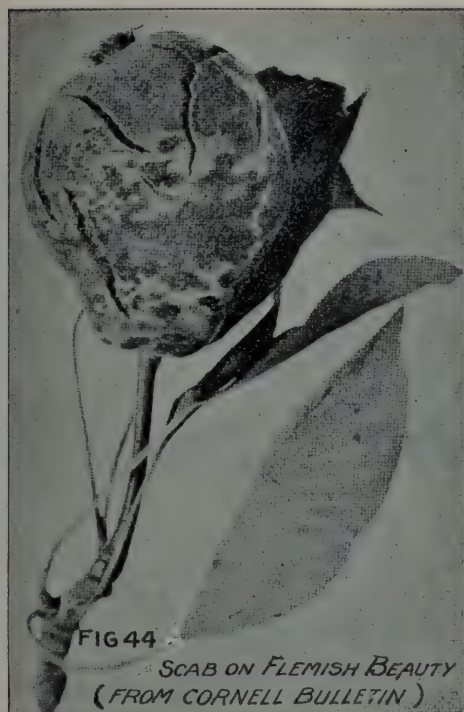
profitably grafted with better kinds. Figs. 43, 44 show the process. The old top, as in the case of grafting large apple trees, must be gradually reduced and not all taken off in one year. A tree over sixty years old of this kind on the writer's farm, had about seventy grafts of Bartlett and Beurre Bosc put in some years ago. A fair proportion of the grafts took, and many baskets of fine fruit of these varieties have since been gathered.

VARIETIES.—In the choice of varieties consideration must be given to the structure of the blossom. Some varieties are almost self-sterile, and should be intermingled with varieties having an abundance of pollen. Among those more or less self-sterile are *Anjou*, *Bartlett*, *Clapp*, *Clairgeau*, *Lawrence*, *Louise Bonne*, *Sheldon* and *Winter Nelis*. Self-fertile varieties include *Duchess d'Angouleme*, *Beurre Bosc*, *Beurre Diel*, *Flemish Beauty*, *Keiffer*, *Seckel* and *Tyson*. In the coldest districts of Ontario pear culture can hardly be successful. One or two Russian varieties might be tried, and the Central Farm Horticultural Department, Ottawa, will give full information on this point. If it is desired to plant a few of the better kinds, the following are suggested for trial: *Flemish Beauty*, *Anjou*, *Keiffer*, *Clairgeau* and *Clapp*.

For sections where the sweet cherry succeeds, and the finer kinds of *Domestica* plums, the following list is suggested in order of season: *Clapp*, *Tyson*, *Bartlett*, *Flemish Beauty*, *Duchess d'Angouleme*, *Boussock*, *Beurre Bosc*, *Beurre Diel*, *Beurre d'Anjou*, *Beurre Clairgeau*, *Keiffer* and *Lawrence*. For home use, *Rostieser*, *Sheldon* and *Seckel* must be added—three varieties of the highest quality. In a commercial orchard it is doubtfully wise to have many varieties. In southern Ontario a good short list would be *Bartlett*, *Bosc*, *Anjou*, *Clairgeau*, *Keiffer* and *Lawrence*.

In the culture of pears for the home use, it should be added that, to secure the highest flavor, the fruit should be picked when the stock parts easily from the stem on lifting the pear, and ripened indoors. The winter pears should be kept in a cool dry place until about ten days from the ripening time, at which time all pears should be placed in a room with the temperature of from 65 to 70 degrees.

DISEASES.—**Blight**.—This bacterial disease is the most serious drawback to pear culture. The life-history of this malady has been thoroughly explored and described. The disease usually effects an entrance into the tree through the blossom or the ends of the young twigs, penetrating to the lower part of the branch, and often communicating itself to many of the larger limbs. If all affected wood is not properly cut out and burned, enough of the bacteria will survive the winter to spread the trouble broadcast next year. It has been often suggested that putting the orchard into sod will minimise the danger. The evidence is, however, very contradictory on this point, and there are manifest disadvantages attending the practice. The more sod the less fruit, as a rule, and the fruit on the cultivated ground is invariably larger. The better way is to avoid heavy manuring of non-bearing trees, and late cultivation, and choose varieties which



are more or less resistant. *Clapp's Favorite*, *Souvenir de Congress* and *Bartlett*, especially the first, are highly subject to blight, while *Keiffer*, *Seckel* and *Tyson* have rarely suffered. This is a question which the intending pear-grower would do well to study closely.

Pear-scab.—(See Fig. 44). Though distinct from the apple-scab fungus, it must be fought in the same way and by the same means.

INSECTS.—The curculio, codling moth and pear-slug are the commonest insect enemies given on p. 176 of the 1897-98 Inst. Report.

THE PLUM.

Nothing need be said as to the claims of this fruit on the amateur or commercial grower. The productiveness and hardiness of the tree, and the many good qualities of the fruit, speak for themselves. From the three types now cultivated, the *Domestica* or European, the Japanese and the native American class, can be selected varieties

that will be successful in all parts of Ontario. It will survive conditions fatal to many other fruits, but will abundantly repay careful attention and high culture. Like the pear, it may be profitably grown on all kinds of soil, but will succeed best and give the highest quality of fruit on heavy ground. Strong clay soils, properly drained, will be found perfectly suitable.

PLANTING AND PRUNING.—The planting and pruning of the first three years are much the same as with the apple. Fig. 45 indicates the manner of pruning the young trees. This, however, is a two year old tree, and with all the vigorous varieties it is far better to plant one year old trees.

Such stock is cheaper, the root will be more fibrous than in Fig. 42, the losses in planting will be less, and in a few years' time it will catch up or surpass the older tree. Fig. 46 is a picture of a block of young Burbank trees planted on a rather hard clay soil in the spring of 1897. The trees were strong one year olds, were cut back to a whip about three feet high. Not a tree was lost, and the whole block is exceptionally thrifty. The head of the young tree should be kept fairly open, and the vigorous growths may be shortened in one half. Some growers practice the shortening-in method year after year. This may be done to advantage with vigorous and erect growers like *Pond's Seedling* and *Bradshaw*, but as soon as the tree bears, these long growths will be checked naturally,

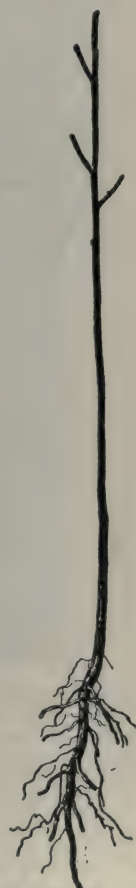


FIG 45 BAILEY
Young
plum stock
well trimmed.



and after the head is once formed it is questionable if any pruning is advisable beyond the thinning out of crowding shoots, and the removal of broken or injured branches.

MANURING AND CULTIVATION should be the same as with other fruits trees. When the trees are bearing a full crop, a good dressing of cow manure and an application of wood ashes will give good returns, as the

maturing of so large a number of seeds is necessarily an exhaustive process of both tree and soil.

VARIETIES—In the coldest sections of Ontario it would be advisable to attempt the growing of many plums of the European and Japanese types. A few trees might be tried. *Glass Seedlings*, a large blue plum of only medium quality; the *English Damson*, *Yel-*

low Egg, *Lombard* and *Reine Claude* will be found amongst the hardiest, notably the two first. Among the native plums, *Wolf*, *De Soto*, *Hawkeye* and *Rollingstone* may be recommended. These are very hardy, comparatively free from disease, and though small, are excellent for canning purposes. In the milder sections the following list of the European class are suggested for commercial purposes, in order of ripening; *Bradshaw*, large blue; *Imperial Gage*, greenish-yellow; *Washington*, large greenish-yellow; *Smith's Orleans*, blue; *Lombard*; *Yellow Egg*; *German* or *Italian Prune*, blue; *Reine Claude*, green; *Coe's Golden Drop* and *English Damson*.

For the planter's own use, *Hulings Superb* and *McLaughlin* may be added, both plums of the gage kind, and of the highest quality. Other excellent sorts are *Prince of Wales*, *Duane's Purple* and *Goliath*. *Lombard*, the most commonly grown plum, is probably over-planted. It is a vigorous grower, productive and fairly hardy. On the other hand, it comes in at a bad time—mid-season—is very subject to rot and black-knot, and is of poor quality. It needs good care and thinning to do really well. The Japanese types are proving as hardy as many of the European class, but many of them are of inferior quality. *Abundance* (see Fig. 46a), *Red June* and *Burbank*, are the ones recommended here. The *Abundance* is an upright grower with slender branches, a good and early bearer but rather subject, as is *Burbank*, to rot. Fig. 47 shows the characteristic growth. This variety should be shortened in to outside buds to encourage a spreading habit. *Burbank*, Fig. 48, runs to the opposite extreme, throwing out strong, wide-spreading limbs, and must be pruned accordingly.



DISEASES.—Monilia, or rot, is by far the worst thing to contend with in plum culture. It has been referred to under the peach. Thinning will tend to lessen it, as will systematic spraying with Bordeaux mixture. When the plums are ripening, all specimens showing rot should be gathered separately and destroyed. None should be left on the tree, as the shrivelled plums that pass the winter on the tree will undoubtedly carry the spores of the fungus to the next year's crop.

Black-knot is also a fungus, maturing its spores twice a year, in May or June, and again in February or March. Constant cutting out and burning of all knots will control this disease in any orchard, but it becomes a difficult matter to subdue the disease unless the whole neighborhood co-operates in the task with something like thoroughness.

Curculio and plant lice are the insects

most troublesome to the plum. Both are dealt with in the publications referred to previously. It may be added that the four ounces of Paris green to the barrel will by no means kill all the curculio, and in a season when this insect is plentiful an undesirable number of plums will still be de-

stroyed. Five and even six ounces can be used to forty gallons as long as plenty of lime is used to neutralize the caustic effect of the arsenic.

M. BURRELL.

St. Catharines, Ont.

THE PEAR—PIRUS COMMUNIS.

THE pear tree has been under cultivation for a period unknown. It is found wild in the British Isles, and is a native of most parts of temperate Europe, it is also found in the Himalayan region.

The pear is well worthy of the title, the "Queen of Fruits," in the Province of Ontario, where it is grown as near perfection as can be done in any country.

The pear attains to a greater height than the apple, and is more upright in growth; it also lives to a great age. There are instances known where the pear lived to over four hundred years.

Every person knows what uses the pear fruit is put to. It is first used for decorating the table, then for dessert, stewing, baking, drying and for manufacturing into perry.

The pear has its insect enemies and diseases like the rest of our fruits, the worst disease being the blight. Having had considerable experience in growing fruit, and, being a keen observer of their habits, I had the good fortune to overcome this disease called fire blight, and it may be that some growers would like to know my methods of checking the disease.

I learned my first lesson from the Seckel pear tree. I noticed that this variety seldom blighted, nor are the other varieties resembling the Seckel in its short-jointed wood so subject to blight as are the soft willow long-jointed growth of many other varieties.



FIG. 1838.

I noticed that the Seckel pear tree ripens its wood before the dry hot weather sets in, or in other words it ripens its wood as it is made.

My observations led me to imitate the Seckel growth by inforcing the same on all other varieties, which can only be done by pruning on the severe spur system—such as the cut herewith represents—a system, I think, not too well known in this country. This system is one of the good ones that must be imported.

To prune the pear in this way from the baby tree up tends to prolong the useful life of the same; it makes the shy bearing varieties more fruitful; it increases the size of the fruit; it gives it higher color, as well

above operation, but the older the trees get the less will become the wood growth which will be replaced by fruit buds, and that more numerous year by year as the pruning on this system goes on.

A very important factor to make the cultivation of the pear tree a success is the soil. The pear tree succeeds in any good deep loamy soil, provided the subsoil is well drained to three and a half or four feet deep so as to be free from stagnant water.

The pear will generally thrive where the apple will grow well. The pear will thrive



FIG. 1839. PEAR BRANCH SPUR PRUNED.

as much better flavor; it distributes and equalizes the sap throughout all the branches alike, which causes a more healthy vigor, when in turn the cultivator may expect uniform fruit of the largest size and best quality. This system is the greatest preventive of the blight known at the present time.

When pruning on the spur system is completed, which should be in the month of March, and that each year to be successful from the time the tree is planted.

The first few years of the trees' growth may appear to be rather rampant from the

well on a deep clay loam, but seldom succeeds on a stiff clay.

To complete the work necessary to the successful cultivation of the pear each tree should have a mulch of coal ashes as far as the spread of the branches in order to keep the roots cool and moist, to keep the clay soil from baking and shedding the rain or artificial water from the roots. This mulch is doubly beneficial to the dwarf pear on account of its being worked upon the quince roots which feed and spread near the surface. The quince does not like a dry hot soil to grow in, when the heat of the

sun and the drouth at the roots stop the sap from flowing into the half matured young twigs. In such conditions they have to stand still during the hottest part of the summer, and by the time the cool nights and the fall rains come, the pith in the centre of the young twigs is dried up and dead, the disease continuing downwards until the tree is dead. It will be seen then that any cool and porous material on the surface of the soil will be of great benefit as a preventive. It will also be seen that the pruning on the above system, stimulating an equal and earlier growth, will have the tendency to make the growth ripen earlier or mature earlier and even on the young twigs. I am also a great believer in wood ashes and bone meal as a fertilizer.


I also strongly believe in using lots of lime in the soil for all tree fruits. I think there is more virtue in lime to our fruits than is known to the majority of fruit growers ; it certainly warms and sweetens the soil and there are few insects that like lime.

Slacked lime is as good as sulphur to prevent mildew on the grape vine ; it helps to prevent the rot in the plum fruit ; it will partly check the curl leaf in the peach tree ; it will kill the slug that eats the coating of the cherry tree leaves ; it will check the ravages of the caterpillars on the gooseberries and currants ; the black fly does not like it on cabbage, or turnips, or radishes, and it will help check the scab on apples and pears. Whitewash the trunks and branches of all trees with a wash of lime, soft soap and clay to thicken as a paint ; scrape first the trunks and branches of all their rough bark ; if the trees are stunted and hide-bound run a strong jack-knife lengthwise through the outer bark along the trunk and branches, but never cut across the trunk or branches, then apply the whitewash, and, I think you will be agreeably surprised at the results derived from the operation.

R. CAMERON.

Read before the Niagara Falls South Horticultural Society 9th April, 1900.

WORMY APPLES.

HERE is nothing new about wormy apples except the way to avoid having them. There are several species of grubs or worms which work in apples, but the one which does nearly all the damage is the core worm. The core worm is the offspring of the codling moth, and this is the insect which a man wants to fight in his apple trees.

The best general remedy for the core worm, or codling moth, according to information furnished by the Vermont experimental station, is Paris green. Some apple growers use London purple ; others use white arsenic ; but they amount to the same thing. They all poison the core worms. Other insecticides like hellebore, kerosene or sulphur, are not effective in this case.

In the hands of the average man Paris

green is the best medicine for the codling moth. The poison should be thoroughly mixed with water at the rate of a quarter of a pound to the barrel—that is about one pound of paris green to 160-200 gallons of water. About a pound of lime ought to be added to each barrel of water, which will prevent scalding of the foliage. It should be applied with a spray pump and fine nozzle. In case Bordeaux mixture is used on the trees the Paris green may be added directly to that solution at the rate already recommended.

The first spraying for the codling moth should be made as soon as the blossoms fall, or within a week afterward. It is very important to do this before the little apples begin to hang down their heads, as after that time they do not catch and hold the poison.—*Vermont Experimental Station.*

CULTIVATION OF AN ORCHARD.

IN The Farming World of June 12th, W. J. P. says that simple mechanical cultivation of the soil may be detrimental, whereas the seeding down of an orchard is most economic and scientific. In a previous sentence he says that fruit specialists do not give reasons for their views in favor of tillage. Does it not occur to W. J. P. that he has omitted giving reasons for his views? He gives an example of a large fruit grower in eastern Ontario who always keeps his orchard in grass, and has good results, but an example is not a proof, for conditions are so various. The writer has an apple orchard on moist, deep sandy loam, that has not been plowed for fifty years, and yet produces excellent crops; and our friend, Mr. E. C. Beman, of Newcastle, has a pear orchard of similar soil, which he never plows, but allows the grass year by year to remain and decay. But these examples are not for every one to follow, for on a dry or heavy soil, with blue grass sod, for example, an apple or a pear orchard would soon become stunted in growth and barren of fruit.

It is in years of drouth, to which we are often subject in Ontario, that the greatest injury is done to our apple orchards by lack of tillage. The wood and fruit buds do not fully develop, and the crop for the succeeding season will be of small size, and scant in quantity. This is of course an assertion only, but it can easily be proven, both by example and by theory. Now of what use is tillage any way? We grant W. J. P. that it cannot put fertility into the soil, but we do

assert that it makes available to the tree roots the fertility which would otherwise remain locked up. So important do we consider this that we always hesitate to apply manure to any part of the orchard that is not under cultivation, thus exposing the particles of the soil to the action of the oxygen: the air has a chemical action which the study of agricultural chemistry shows will (1) set free plant food, (2) promotes nitrification, (3) decompose vegetable matter.

Tillage also exerts a great mechanical benefit, increasing soil depth, and breaking it up into fine particles, easier penetrated by the rootlets of the trees; but the most important benefit is the conservation of moisture. When untilled the moisture is constantly being brought to the surface by what is known as capillary attraction, while cultivation fines the soil and breaks up this action, thus preventing the rapid escape of moisture.

These are a few of the reasons why tillage of orchards is so strongly advocated by specialists in fruit culture, but they might easily be amplified. The writer started out thirty years ago with the same view as that expressed by W. J. P., even planting a heavy clay field to an apple orchard with the fond hope of thus avoiding the hard work of plowing that field; but that fond hope was doomed to sad disappointment, and every succeeding year converts him more and more to a sense of chargin that he should ever expect any good results without labor.



RELATION OF CULTIVATION TO THE GROWTH AND DEVELOPMENT OF APPLE TREES.

WHITTEN, of Missouri, has been making some useful experiments on the effect of tillage on the growth and vigor of apple trees. These conditions have long been considered by us at Maplehurst and by many of our best growers, who once thought that an orchard needed no tillage. Almost all have now become convinced of the necessity of giving their orchards the very best cultivation if an abundance of fine fruit is to be harvested.

The following are some of Whitten's points as given in Bulletin 49, University of Missouri, Columbia :

The greatest growth has been made by those orchards that have been cultivated most. Cultivated trees are uniformly healthier, more vigorous, and produce larger fruit than those not cultivated.

Cultivated trees make more uniform growth than do those not cultivated. The more cultivation the less they are effected

by drouth. The principal height growth of trees is made early in the season, when moisture supply is ample, so that a drouth later in the season does not affect the height growth of the current season ; its effect is, however, noticeable in the imperfect development of the fruit, and failure to properly mature and ripen the wood and buds for another season. The evil effects, therefore, will be more noticeable in the year succeeding a drouth than in the same year, when in the case of uncultivated orchards a generally devitalized condition may be looked for.

It is commonly thought that cultivation should always cease about August 1st, and no doubt for a wet season this would be wise in order to check the wood growth and allow it to be ripened in good time before winter ; but in a dry summer and autumn the orchard soil should be kept in good tilth until the crop matures, or at least until rains come.

FRUITS, OLD AND NEW.

SIR,—I would like to express through the columns of the Canadian Horticulturist, my admiration of the very valuable information and the many pointers contained in that column relating to Horticulture and Arboriculture, especially during the last few years. Having spent nearly 60 years in this country, and being familiarly acquainted with nearly all the counties from Kingston to Goderich north and south, for the last 25 years, I am fully persuaded that we, as Canadians, are not as far advanced in the art of Horticulture as we might be nor as we ought to be. If you take a drive, as I had the opportunity of doing last week, to the county east of us,

viz., Durham, and also west of us, viz., York, and through our own county, you would be not only surprised but disgusted at the number of nests of tent caterpillars to be seen on the route, and I assume that it is largely due to the neglect of spraying the orchards with the proper mixtures at the proper time, and I am sure it is not for the want of timely warning. As our Ontario Government has given practical lessons and advice which, if carried out, would rid the province in a few years of one of the worst enemies the orchardist has to contend with. I am pleased to be able to note the rapid advance made in the last few years in the way

of opening up new markets for our surplus fruits and the prices obtained for the same when properly put on the foreign markets, and just as soon as our people find out that it is more money in their pockets to grow one pound of choice Canadian fruit than to grow and handle two pounds of mixed or inferior stuff, more spraying, thinning, sorting and packing will be attended to, and certainly no shipper will attempt to forward to the European markets inferior fruit and expect the importers to make it O. K. unless the goods are as represented, and then we may look for a rise in the price when the purchaser knows before hand what he is getting. As a fruit grower, I think our system of selling not the right system. I believe our fruit ought to be handled more profitably if handled the same as grain or wool or other farm commodities, that is, for every one or two men in a municipality for instance, to receive all fruits subject to inspection, that grows in their district, forward it and sell it and pay the patrons what the goods are sold for. Our present system here is usually to sell to exporters and take what they give, which sometimes amounts to very little, but I anticipate considerable difficulty next season in getting the inspectors to pass the fruit unless more care is taken by shippers in having their fruit more properly graded and packed than formerly. Our fruit in this district appears at present to be the largest on record, beating the crop of '96. The apple, pear and cherry orchards has been from about the 20th ult. to the present time, one magnificent display of bloom, and the air was laden with the perfumes of the flowers. I notice, too, that the fruit on the apple, pear and cherry trees are very abundant, and unless thinning is resorted to a large proportion of the fruit will be below the standard sizes. In plums there was no bloom consequently we will have no fruit. In small fruits the crop will likely be above the average, in other words, a full crop. There are not many strawberries grown here for

export, but what are growing are looking very fine. Grapes have made a vigorous growth and are setting their fruit well. Currants will be a good average and raspberries a full crop. Nearly all our planting of 1896 and '97 are or have been in bloom and I expect to add largely to our exhibits of new varieties, especially in pears. Quite a number planted in '97 have fruit on them, some are not 3 ft. high. Take all in all the fruit prospects in this district are very favorable, and bid fair to eclipse any former year. The timely rain last night was of immense benefit to the growing crops of this county ; it was much needed. Tent caterpillars are very plentiful where spraying has not been attended to, but the careless will reap the result. Regarding newer varieties that I have tested and find very satisfactory, are the Salome, Shackleford, Gideon and Stark; they are all good growers, early bearers, good keepers and good color. The Stark is the fastest grower of any apple in the orchard, the Gideon coming a good second. The Salome is the longest keeper that I have ; the Shackleford is a beautiful apple, but rather small if allowed to over bear. I have a large number more new varieties that had a few apples last year, a detailed account of which I propose to give you later on, as most of the trees planted in '96 have set their fruit this year and many will require severe thinning. In pears, the Dempsey takes the lead in growing and is also loaded with young fruit. Winter Nelis, Doyenne 'd Ete, Beurre Easter, Bartlett, Seckel (a most delicious pear), Petite Marguerite and some others fruited last season and are again loaded this season ; I would just say that according to present prospects the apples and pears will be a record breaker this year. Cherries are well set and will be a good crop, but plums will hardly be found in this district. The weather is delightful and all sprayed orchards are looking fine at present.

Whitby.

R. L. HUGGARD.



TIMELY TOPICS FOR THE AMATEUR—V.

THE hot weather usually prevailing during the month of July brings a period of comparative rest and relaxation in garden work that is most acceptable after the busy time experienced during the spring and early summer.

Although routine work may not press so heavily as earlier in the season, sufficient can still be found to occupy all the spare time that one usually feels inclined to devote to the garden during the hot sultry weather; especially when, perhaps, other, and apparently more attractive sources of recreation present themselves to lure the plant lover away from his favorites. The garden, however, must not be entirely neglected as insect pests and weeds will still require constant attention to keep them under control. Fruit picking will be an acceptable relief to the usual routine of work in the garden.

Watering lawns and plants will also occupy considerable time and attention.

Extra care will be necessary in watering greenhouse plants, as many of these plants should now be enjoying a period of comparative rest that comes naturally to them when growing wild in their native haunts. This dormant, or semi-dormant, period in

plant life, requires to be of a much more decided character in some classes or germs of plants than in others, and, unless the plant grower has some knowledge of the requirements of the plants under his care, partial, or, perhaps, total, failure in their culture must of necessity be the result. Careless and indiscriminate watering of plants is responsible for many failures in plant culture at all seasons of the year.

THE GREENHOUSE.—The management of the greenhouse or conservatory during the hot months of summer, when most of its customary habitants are out of doors in their summer quarters, depends entirely on the class of plants that are still occupants of its benches. If Exotic ferns, fancy Caladiums, Anthuriums, Dffenbachias or similar plants that require great heat and moisture, are the principal occupants, the greenhouse must be kept well shaded and top ventilation almost entirely used in the day time, as these plants dislike anything like a draught. Very little ventilation, if any, must be given at night. Keep the floors well dampened and close the house an hour or two before the sun is off. This will keep down red spider. If the floors are kept well moistened very little spraying, if any, will be required.



FIG. 1840. PELARGONIUM.

Tobacco stems sprinkled under the benches, dampened occasionally and renewed every two or three weeks, will keep down thrip—an insect to be as much dreaded as red spider amongst a collection of these plants. If summer flowering Tuberous, or Rex Begonias, or Gloxinias are occupants of the greenhouse, ventilation may be given more freely, leaving the top ventilation open all night. Oftentimes there is little else but a climbing rose, planted out in a box or border, that has of necessity to be left in greenhouse during summer, or, perhaps, some other climbing plant that requires to be kept dormant so as to ripen its wood to produce a supply of flowers in the winter. In this case the house should be only partially shaded, the top and bottom ventilators should be kept open day and night, and only sufficient water used to keep the roots of the plant from drying out completely.

The beautiful climbing Allamandas that are sometimes seen in greenhouses, and

that give their wealth of large golden flowers so profusely during summer and early autumn, require plenty of shade, heat and moisture to produce the best results possible.

Most varieties of winter flowering Begonias succeed best, stood or plunged, out of doors in partial shade during the hot weather.

Fancy Caladiums may, perhaps, need re-potting into larger pots; care must be taken not to disturb the roots during the operation.

Chrysanthemums will require plenty of water at the roots, and syringing once a day in very dry weather. Tobacco stems spread around near these plants will help keep down the black aphid or fly.

Fuchias require plenty of shade and water; a little weak liquid manure will help them to continue flowering.

Old leaves of Rex Begonias or Gloxinias will strike readily in sand in the cutting bed. In cutting these for striking leave about half of the stem attached to the leaf, insert the stem and a small portion of the leaf into the sand. Keep the sand moist, but not saturated with water. About half of the outside of the Begonia leaf should be cut away before inserting in the sand. Pot into light sandy soil in small pots when rooted.

Early sown Cinerarias and Calceolarias will require to be potted into small pots, or transplanted into shallow boxes, as soon as they are large enough to handle. A sowing of both of these for later flowering may be made now. A sash and frame in a cool, shaded position out of doors is the best place to start the seeds, also, to grow the young plants, until they are taken into the greenhouse in the autumn.

Roses should be planted out on the benches toward the end of the month if any are grown in this way, but I do not consider bench roses profitable in a small greenhouse where a general collection of plants is grown.

The Niphetos Rose, budded on a lamarque or cloth of gold rose stock, will give good results in a small conservatory or greenhouse. Pot roses, for fall and winter flowering should be stood outside in partial shade, and given only sufficient water to keep the roots from drying out. Pelargoniums and Fuchsias that have done flowering can be treated in a similar way ; as withholding water partially from these and similar spring and early summer flowering plants induces a period of rest and helps to harden the wood necessary to produce flowering results next season.

Any repairs required to the greenhouse should be done now when most of the plants are out of doors. Give the sashes and woodwork a good scrubbing and cleaning with whale oil soap and water.

WINDOW PLANTS.—Watering and keeping free from insects are the principal features in window gardening just now. If any old plants of Geraniums are required for next winter's flowering they should be cut back to the old wood, and, as soon as the young buds appear, shake the roots partially out from the soil, cut off a portion of the roots and repot into a size smaller pot if possible ; water very sparingly until well rooted. These will do best stood or plunged out of doors in the open ground. Fuchsias and many other plants required for winter flowering will succeed best stood out of doors in partial shade and not watered too heavily for a few weeks.

FLOWER GARDEN.—Watering and keeping down the weeds will be the heaviest work probably in this department, as the lawn will require very little attention during the dry season so far as cutting the grass is concerned.

Most of the perennials will be past their flowering season, Gaillardia Grandiflora, Rudbeckia (Golden Glow) and a few others may still give a few flowers. Early sown Asters, Zinnias, etc., will soon be coming into flower.

Dahlias will require plenty of water at the roots, syringing the foliage liberally in the evening will materially assist the growth of these autumn favorites. Some of the Cactus and single-flowered Dahlias are very pretty, and better suited for decorative purposes as cut flowers than the more massive blooms of the show varieties.

The double Rudbeckia (Golden Glow) is indispensable in the flower garden, its wealth of golden blossoms being produced in great profusion during the hottest weather, and it often gives quite a sprinkling of flowers until quite late in the fall. It requires very little care and seems to flourish in almost any kind of soil.

The herbaceous Hibiscus (Crimson Eye) makes a showy decorative plant for the lawn or border. Its large funnel-shaped flowers, produced in July, or early in August, when flowers are scarce, make it a conspicuous object when in flower. Being herbaceous in character it can be easily protected by a heavy mulching in winter, although, it has proved quite hardy in this section without any protection.

FRUIT GARDEN.—Currants, gooseberries, raspberries and late cherries should claim quite a share of the time that can be devoted to the fruit garden during July.

Plums, pears and peaches if too thickly set may be thinned to advantage. Green peaches make a splendid pickle if pickled just before the pit hardens. These should be treated the same as for walnuts in the pickling process. Plums when green can be used for stewing, but they make tremendous inroads on the contents of the sugar bowl.

Grape vines must be gone over occasionally and useless and lateral growth removed. For prevention and cure of mildew on grapes a good composition can be made by putting one pound of lime and half a pound of sulphur into three gallons of water, and boil slowly until reduced nearly one half. Allow the liquid to stand and cool, skim and

strain carefully. A teacupful of the liquid may be used once or twice a week, diluted in four gallons of water. If the liquid is strained carefully it will not spot or discolor the fruit when the vines are syringed with it. The liquid can be kept for a long time corked up in bottles or jars.

VEGETABLE GARDEN.—There should be a good supply of fresh vegetables ready for use now in this department that will be most acceptable, as potatoes, beans, peas and early planted cabbage and cauliflower should now be giving returns for labor and care bestowed on them earlier in the season.

A row or two of beans may be planted, if the weather is suitable they will furnish a supply of this useful vegetable until the first pinch of frosty weather touches them.

Late cabbages should be planted at once if not already done; these can be planted where crops of early peas or potatoes have been taken off. Dig and manure the ground well before planting them.

A row or two of beets may be sown, these are much more tender eating during fall and winter than those sown early in spring. Sow a few rows of spinach seed, it may come in nicely for use in early autumn.

Plant celery in shallow, well-manured trenches. Celery requires plenty of water during dry weather. The end of July will be early enough to plant celery for winter use.

White turnips may be sown if you have a spare piece of ground; mix a few Chinese rose or white radish seeds with the turnip seed before sowing. Light, rich soil suits white turnips best.

Spray or sprinkle potatoes with Bordeaux mixture; a little more Paris green may be used than is usual in this mixture to keep down the potato bug.

Keep the hoe busy, surface stirring the soil helps to keep it moist and cool as well as to destroy the weeds.

HORTUS, Hamilton.

TRADESCANTIA.



FIG. 1841. TRADESCANTIA.

TRADESCANTIA, or WANDERING JEW, is such a favorite with all amateurs being so easily grown and withal so pretty that our readers will be interested in the following note from *Vick's Magazine* concerning the florist whose name it bears: Its botanical name is associated with a celebrated florist, John Tradescant, gardener to that unfortunate monarch, Charles I. Tradescant was a

Dutchman, and was called Tradescin by his associates. He established a botanic garden in Lambeth, England, as early as 1629, which was then a rare thing. He also collected a botanical museum, of which Flatman, the painter-poet, said

Thus John Tradescin starves our wandering eyes
By buying up his new-born rarities.

He bequeathed this museum to his friend Elias Ashmole. His wife contested the will, but failing in her suit, and not willing to be resigned to the loss of the museum, she foolishly drowned herself; this tragedy so affected Ashmole that he did not care to keep it in his possession, and he presented the museum to the University of Oxford in 1677.



FIG. 1842. AZALEAS GROWN BY S. AVLETT, HAMILTON.

AZALEA CULTURE.

AZALEA INDICA is one of our most popular winter and spring flowering evergreen plants. With a good collection, the Azalea may be had in flower from Christmas to May, if kept in a cool house and a few plants brought into a higher temperature as the buds advance.

SOIL.

The best soil for the Azalea is a compost of two parts good leaf-mould, one of light fibrous loam, and a little well-rotted manure.

DRAINAGE.

Thorough drainage of the pots is most essential. Pot firmly, and do not use too large sized pots. Be sure the ball of roots is thoroughly soaked before potting. Large plants do not need repotting very often, but should be given a little weak manure water occasionally. The best time to repot the Azalea is soon after it has done flowering.

After potting they should be kept in a close atmosphere for a few days, and freely syringed. About the end of May they should be plunged outside in partial shade, and kept well syringed and watered every day during the hot months to encourage new growth and the forming of new flower buds. They should be taken inside before the first frost and given less water until they begin to flower, when they again require a free supply.

The Azalea as a house plant has not hitherto been a success. The atmosphere of an ordinary dwelling is too dry, thus encouraging red spider and thrip, which soon destroy the foliage. If the plants are syringed with water every day they will be greatly benefited, and by this means some have managed to grow them successfully for at least three successive seasons.

Hamilton.

SAMUEL AYLETT.

A NOVEL TRELLIS.



FIG. 1843.

A NOVEL TRELLIS for morning glory is thus described in Park's Floral Magazine: I make a trench four inches wide, in a circle

eight feet in diameter. After the soil has been enriched by rotted manure, and well pulverized, plant the seeds. The plants grow quickly and in a few weeks they will be large enough to string. Put a pole eight feet high in the centre of the circle; insert one end in the ground, and in the other drive a nail; put the strings four inches apart at the bottom, carrying around the nail in the top of pole and down again. If a door is made in one side it makes a novel tent for the little folks, besides being beautiful.



PALMS.

THERE are a great many varieties of palms grown for decorative purposes, some of the most popular, in the order in which they are most favorably known, are the following :

Kentia Balmoriana. This is probably the best house palm grown, and is increasing in favor every year. It is not a rapid grower, but in a light place in a warm room and with sufficient water, the leaves being kept sponged off and clean, it makes an ideal house plant and improves from year to year. I have seen several of these house-grown palms better than any coming from green-houses.

Next in order comes *Kentia Fosteriana*, a fine palm, but generally a stronger grower than the preceding. Some of this variety shown last fall prove what can be done in the house with it. The fine *Kentia Canterburyana* is rather expensive. The hardy and very graceful *Cocos Weddelliana* is fine for a warm house, but is not so long-lived as the *Kentias* ; it stands the wear and tear of the house very well for one season.

The *Phoenix Rupicola* is one of the most graceful palms grown, and like nearly all of the *Phoenix* tribe stands the house treatment well. It is a slow grower and rather expensive, but with a little care will last many years—which may be said of several other varieties of the *Phoenix*, viz., *Canariensis*, *Tennissima*, *Sanderiana*, *Dactylifera*, etc.

Latania Borbonica is a favorite house plant in places where it can have considerable room to spread. But a much finer variety, with something of the same character, is *Levistonina rotundifolia*, of a more compact growth than *Borbonica*, and quite as hardy and useful.

Rhapis flabelliformis is rather a slow grower, but one of the best hardy decorative palms we have. *Rhapis humilis* is quite as

hardy and is more graceful and of a brighter green, but is scarce and expensive, and so it is seldom seen here.

The very graceful *Areca lutescens* is much in use in the United States, but has not proved a good house plant here, seldom lasting more than one season, even with careful treatment.

Chamærops fortunii will stand much ill-treatment, but grows slowly and looks stiff, while *Geonoma Gracilis* is pretty, but tender and scarce. *Areca Verschaffeltia*, a good, hardy variety for a warm house, has a distinct appearance, but is rather expensive.

Several varieties of *Caryotas* are known to growers as pretty plants, but are seldom seen outside of private collections in this country. The same may be said of varieties of *Calamus*, several fine specimens of which are in the collection at Exhibition Park.

There are a great many plants called palms that are not really palms, such as the *Cycads* and several varieties of *Pandanus*. Very many more varieties of the palm beside those above mentioned, are well known to florists. The edges and tops of the leaves turn brown from various causes—from want of water, from getting too much water ; sometimes furnace gas is the cause, or the air becoming too hot through radiators, stove pipes, etc. Palms do not want large pots unless they are growing very freely, and even then it is best, in repotting them, to give them a pot only one size larger than the one they have been growing in.

The soil I like best for palms is made up of one-half sandy loam and one-half well-rotted manure. The soil should be worked evenly down around the sides of the pot and pounded tight with a potting stick. Before repotting the plant should be well watered, and also after the potting is done, so that all the soil may be equally moist.

A great mistake is often made by amateurs in potting up plants that are not doing well. Many fancy that when a plant looks sickly it should be repotted. Perhaps it is in an eight-inch pot; they procure a pail, some nicely sifted soil, and carefully transfer their plant, putting the soil in as lightly as possible and never pressing it down for fear of hurting the roots. The plant soon dies,

while the owner thinks he has given it the best of care. A plant never needs a larger pot unless the pot it is in is full of healthy roots. A sick plant with few roots may want repotting, but it is into new, sweet soil, and a smaller pot, the soil without much manure and the plant firmly set.

By MR. THOS. MANTON, of Manton Bros., Florists, Eglinton.
Read before the Toronto Horticultural Society.

LAWNS AND WALKS.—These, if kept trim and neat, as they should be, add to the appearance of and contribute greatly to the enjoyment of a place by its proprietor and friends. The lawns should be mown and the edges cut at least once a week, and if there are any "bents" or flower stalks of weeds or grasses which the machine will not cut, these should be cut with a scythe. Where the grass is thin the collecting box may with advantage be left off the mowing machine. Gravel walks should not be hoed, but all coarse weeds are best pulled up, and if there are many small weeds appearing,

one of the simplest methods of getting rid of them is to dress the walks with rough salt obtained from manure dealers. This should be applied during hot, sunny weather, and in sufficient quantities to just whiten the surface. Crude carbolic acid used at the rate of one ounce to a gallon of water and liberally applied with a rose watering-pot, is both a cheap and effective remedy. Whatever destructive agent be employed, care must be taken not to let it touch either the roots and tops of box or other edgings, nor the lawn grass.—*Garden Work.*

WINDOW BOXES.—A charming arrangement was noticed recently. The plants employed were nasturtiums only, and the entire cost could not have exceeded fifty cents. The box was of rough boards evidently, strongly joined, and set upon a pair of iron brackets. The box was covered with floor oilcloth, tacked on, and the design was such that it looked like tile work. The colors were cream and brown. A pine frame the width of the window, and six inches across, was nailed to the top of the window for attaching the strings on which the vines were supported. The nasturtiums were of both the dwarf and climbing sorts. A drapery

of trailing nasturtiums fell over the edge of the box, and dwarf nasturtiums filled the centre, and all were of the deepest, richest colors known to this flower. The nasturtiums that were trained up the supports were of lighter colors, lemon and orange, and cream. The middle strings had been loosened and the vines had been drawn back from the centre to each side by strong strings; the whole appearance being a diamond-shaped aperture surrounded by a drapery of living green. The effect was equally charming from within and without.

—*Vick's Magazine.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th. ¹⁸⁹⁸
 SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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 LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE NOVA SCOTIA School of Horticulture had 69 students last year. The expenses of the school were \$1,843.47.

CHERRY CURCULIO.—This insect is often very injurious to the cherry crop, and must be fought persistently with Paris green. Three ounces to forty gallons of water is the usual amount, and two or three times that quantity of lime should be added to prevent injury to the foliage, and help to hold the Paris green to the same.

THE CANKER WORM has been exceedingly troublesome in many of our apple orchards this spring, especially on Spy trees. The infested trees should be early sprayed with Paris green, 4 to 6 ounces with the same of lime to 50 gallons of water. The lime should be reduced to milky consistency and run through a wire sieve to avoid clogging the nozzles. When the worm is well grown

Paris green is said to be less effective, and Bowker's arsenic lead, 3 ounces to 50 gallons of water, is an effective remedy. The Ohio Experimental Station says this mixture does not injure the foliage. It is milky white in appearance, as thin as water, and adheres for weeks. It may be procured from the Bowker Chemical Works, Boston.

KEEPING WINTER APPLES IN WAXED PAPER —Youngers, of the Nebraska H. S., has reported on his experiments under this head. In fall of 1897, about November 1st, all available varieties were put in cold storage, each apple wrapped first in a sheet of waxed paper—9x12 inches for the smaller and 12x12 for the larger ones. Another cover of newspaper was added, and then all packed tightly in barrels and put in cold storage with temperature at 36°. A few were stored in barrels without wrapping. On June 1st, 1898, the first examination was made, and

of those not wrapped 70 per cent. were decayed, of some wrapped in newspaper only, about 30 per cent. were decayed, while those with the double wrapping of waxed sheets and common paper remained in almost perfect condition as late as November 1st.

RUSSIAN APPLES have been very much decried in some quarters to the south of us as of little benefit to America. On the other hand we claim that much has been gained by the Budd-Gibb and other importations. Here is a list of valuable varieties which we owe to that country, viz.: Duchess, Tetofsky, Yellow Transparent, Longfield, Hibernial, Anisim, Charlemoff, Yellow Sweet, Regal.

BANDS FOR TRAPPING CODLING MOTH.—The following is a copy of an Order-in-Council approved by His Honour the Lieutenant-Governor, the 24th day of May, A. D. 1900.

Upon the recommendation of the Honourable the Minister of Agriculture, the Committee of Council advise that pursuant to the provisions of "The Noxious Insects Act" '63 Victoria, Cap. 47) the following regulations be made for the prevention and destruction of the Codling Moth:

1. It shall be the duty of every occupier of a lot within the municipality, or if the land be unoccupied, it shall be the duty of the owner of such lot, within one week after receiving notice as provided for in the Act, to place bands (as hereinafter described) upon the orchard trees located upon said lot, as follows: Upon all bearing apple trees and pear trees, and upon all orchard trees of bearing age within forty feet of such bearing trees.

2. The bands shall be made of "burlap" or "sacking," or similar suitable material, and shall not be less than four inches in width and of three thicknesses, and shall be securely fastened at a convenient point between the crotch of the tree and the ground.

3. The occupant or owner shall have these bands removed and inspected, all larvae therein destroyed, and the bands replaced at intervals of not more than two weeks during the months of June, July and August.

Certified, J. LONSDALE CAPREOL,
Asst. Clerk, Executive Council.

An attempt is being made to put these regulations in force in the Township of

Saltfleet, in Wentworth County, and we shall look with great interest for the results attained.

APPLE RAISING FOR PROFIT is the subject of an address lately given by Mr. J. H. Hale before the Massachusetts Horticultural Society. In his address he said:

"New England, as regards soil and climate, is better suited to the apple than other sections of the country. We can grow apples of finer color, flavor and texture in New England than anywhere else. The first thing necessary beyond soil and climate is to have good trees with perfect foliage from the beginning to the end of the season. Frequent and thorough tillage is necessary. Trees must have room enough for air and sunlight. Next they must have intelligent feeding. They need potash and phosphoric acid, with a moderate amount of nitrogen. Fungous growth will attack even the best cared for trees to some extent, so that spraying is essential.

"Let us first consider our old orchards. What can we do with them? Old trees should be pruned, and this should be done by a man of experience. Cut out all dead wood and some small branches. Don't try to do it all in one year; take two or three. If you do not want to plough your orchard, put on a top dressing and harrow. But if your orchard is to be devoted to apples alone, plough it and put on fertilizers. Scrape off all old, rough bark, and spray with a potash wash while the trees are dormant. Carry on the ordinary summer spraying for the codling moth, etc. If your land is rocky or rough, it may be mulched with any old material that is available—anything that will kill out the sod—but ploughing is better. You may pasture swine or sheep in your orchard, if you wish. I know of a man who has used an orchard of eight acres as a pasture for hens, and he is 50 per cent. ahead of the former owner, who made the same

orchard a hayfield. After cultivating a year or two, it will be necessary to thin out the fruit.

"You cannot have good fruit without thinning. If a young tree attempts to bear ten apples, pick off eight and leave only two to come to perfection, and you will have two fine specimens. The talk of an "off year" is nonsense. There should be no "off year." When the climatic conditions are such that the crop is ruined, the next year the trees will be so full that the fruit cannot ripen and at the same time form buds for the following year. By thinning off 75 to 80 per cent. every year you can bring the tree into the habit of annual bearing. Watch your trees closely and as soon as the apples are ripe pick them, even if it be August or September. Pack them at once in the barrels or boxes in which they are to be shipped, and place where there will be a good, even temperature. Grade according to size and pack honestly from top to bottom."

GILLET'S LYE has been used at Maplehurst on rose bushes, both for aphid and rose hopper with marked benefit. We used one ten cent package to five gallons of water, which, in a few cases slightly burned the foliage, but wholly routed the enemy. We also used it with success to destroy the aphid on the cherry trees, applying it with Mitchell's atomizer, but it injured the foliage considerably.

KEROSENE is also used for destroying the insects above mentioned. The 10 per cent. solution is the proper strength in summer, made in the proportion of one gallon kerosene to ten gallons of water.

WHALE OIL SOAP used in the summer time where the foliage is out, should be used at the rate of one pound to five or more gallons of water. This will destroy the young of the San Jose Scale and Aphid.

IRRIGATION in fruit growing is the title of Bulletin No. 116, U. S. Department of Horticulture. After showing that the trees of the Citrus family require more water than our deciduous trees, he attributes three evils to insufficiency of moisture, viz.: Poor growth, poor fruit and intermittent bearing. Summer irrigation before fruit ripening of three acre-inches per acre after the early ripening fruits have reached good size and just before they begin the final swell, is claimed to reach the circulation of the tree in time to materially aid in the attainment of satisfactory size. More than this it also helps the tree to hold its foliage and growth the balance of the season. A large portion of the bulletin is taken up in explaining the various methods of utilizing irrigation water which we cannot enter upon here; for these details we refer our readers to the bulletin referred to.

FERTILIZING SELF-STERILE GRAPES is the title of Bulletin No. 169, by Prof. S. A. Beach, Geneva, N. Y., who has for several seasons been testing the self fertility of the grape. Many of our cultivated American grapes will not produce perfect bunches unless cross pollinated by some more fertile variety, and Mr. Beach has been seeking to find out the best varieties to use for this purpose. Detailed statements of the results are given with quite a number of varieties upon which experiments were made, and of these we give the instance of the Brighton, a self-sterile variety, fertilized by different varieties, the first five more or less self-sterile also, and the others more or less self-fertile. The illustration speaks so fully for itself that nothing more is necessary to prove the necessity of planting self-fertile varieties in our vineyards instead of large acreages of one variety, and in any degree of a self-sterile kind, such as Lindley, Salem, Barry, Merrimac, etc.

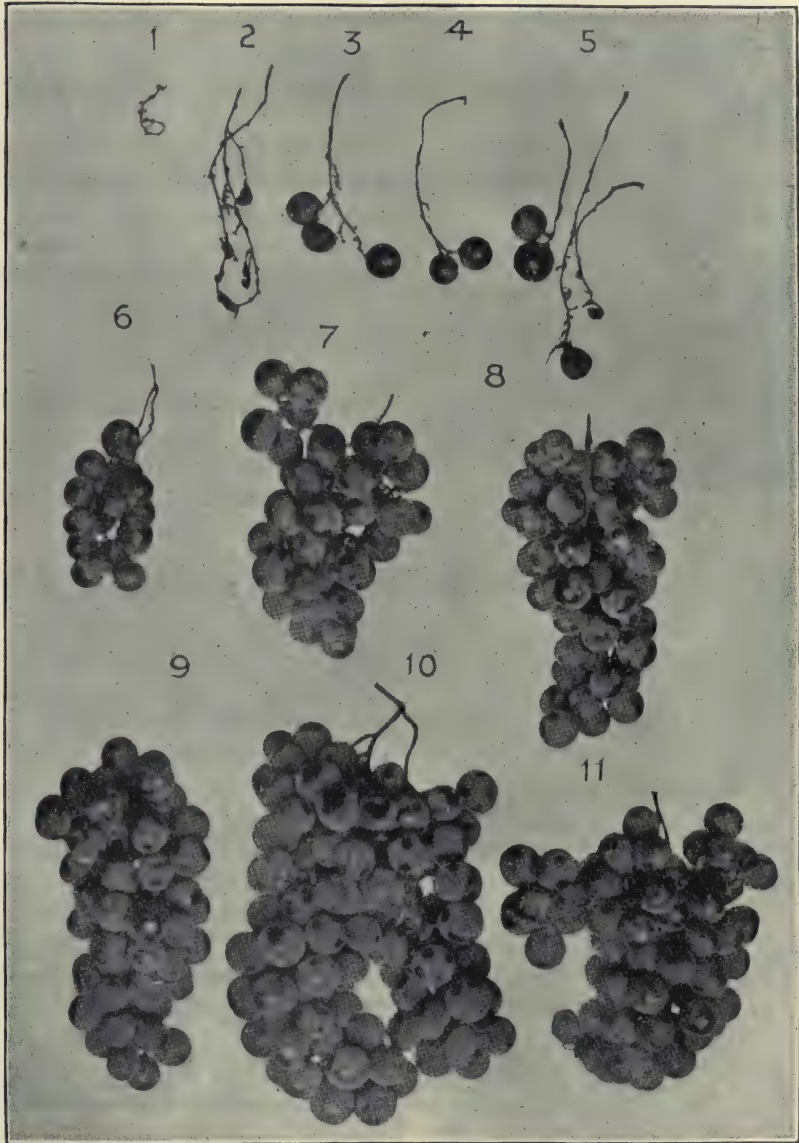


FIG. 1844.—BRIGHTON FERTILIZED BY DIFFERENT VARIETIES.

1. BY SALEM. 2. BY CREVELING. 3. BY LINDLEY. 4. BY BRIGHTON. 5. SELF-POLLINATED.
6. BY NECTAR. 7. BY JEFFERSON. 8. BY NIAGARA. 9. BY WORDEN.
10. BY VERGENNES. 11. BY ROCHESTER.

PROMINENT CANADIAN HORTICULTURISTS.

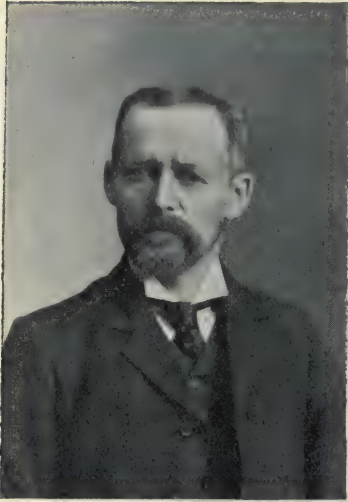


FIG. 1845. G. C. CASTON, CRAIGHURST.

It has always been the policy of our Association to search out the foremost fruit grower in each agricultural district as director for that district. By this means we have tried to secure as officers the best representatives of our industry.

No mistake was made when Mr. G. C. Caston was elected for Division No. 13. His excellent common sense; his long experience in growing and handling fruits, and his regular attendance upon our meetings have combined to make him one of our most valued members, whose judgment is always sought when important questions arise.

Mr. Caston was born in the village of Craighurst where he now resides. He began his Public School education at six years of age, and at fourteen was as far advanced as the teachers of those days. Having to make his own way in the world and not being able to get the benefit of a course at the High School, he worked at farming for several years. Having a liking for machinery he worked for several years at the milling business, but, finding his

health failing, he turned back to the farm. With an inborn love for horticulture he resolved to turn his village lot of five acres into an orchard, and soon planted it with trees. About this time he became a member of the Ontario Fruit Growers' Association, and he regards this as one of the most important steps in his life. Always a voracious reader and possessed of a retentive memory, he read all the horticultural literature he could get. The annual reports of the association had, for him, an absorbing interest, and he will always remember with warm feelings of gratitude Prof. Saunders, the late P. C. Dempsey, A. M. Smith and others, who were leading members of the Board at that time, and who contributed so much valuable information to the reports.

For several years, while his orchard was young, he grew small fruits between the trees. After a time he purchased the adjoining farm, and has now quite a large area planted to apples, pears, plums, cherries and small fruits, and which he is gradually enlarging every year.

In '94, at the request of the Board, he accepted the management of the Experimental Fruit Station for Simcoe County, his special-being hardy apples and hardy cherries.

On the retirement of Mr. Chas. Hickling from the Board of the Association Mr. Caston was elected Director for Division 13. This position he has held up to last year when he was elected Vice-President of the Association.

Mr. Caston has also been Secretary of the local Farmers' Institute since its organization, and has served as Secretary and Director of local Agricultural Societies, and his services as judge of fruit at the fall fairs is much in demand. He has a strong faith in the future of the fruit growing industry in Ontario as one of the most important industries of the Province.

QUESTION DRAWER.

The Bud Worm.

1163. SIR.—Would you please give me the name of enclosed grub found on the apple leaf, and what is best to destroy it?

Oakville.

C. W. MARTIN.

The larva sent to us by our correspondent is the well known Bud Worm (*Tmetocera ocellana*). Early in spring, when the buds begin to open, it eats out the centres of the buds and later webs together the leaves for self protection. The best remedy is to spray the infested trees with Paris green.

Apple Aphis.

1164. SIR.—What is best to do for a tree having lice on the bark of the limbs?

Oakville.

C. W. MARTIN.

The apple aphis, cherry aphis, rose aphis, etc., can be easily destroyed by spraying with whale oil soap, Gillett's lye, or kerosene emulsion early in the season, before the leaves begin to curl. It is best to make one strong application just before the buds open out.

Hybridizing of Cucurbits.

1165. SIR.—Will you please to answer the following questions in an early issue of your valuable monthly. Will the following hybridize or in any way lose flavor by being planted near each other, and, if so, how far apart should they be planted, viz.: Watermelons and citrons, watermelons and muskmelons, watermelons and cucumbers, muskmelons and cucumbers, muskmelons and pumpkins, muskmelons and squash, squash and pumpkins, different kinds of muskmelons? Also, if they do mix will the change be perceptible the same year or from the seed of that in the next year's fruit? When one has only a square plot and wishes to cultivate a variety it is well to know. Thanking you for past favors, I am yours truly,

Iroquois, Ont.

A. B. CAMERON.

The question of crossing and hybridizing of cucurbits is one about which there is a good deal of misunderstanding. The most systematic experiments along this line have been conducted at the Cornell Experiment

Station by Prof. Bailey, and results attained show that hybridizing is not nearly so frequent as is supposed.

Different varieties of the same species, such as one variety of muskmelon with another, or one variety of cucumber with another cross readily, but hybridizing, or the crossing of distantly related species, such as muskmelons with pumpkins, very rarely, if ever, occurs, although in more closely related species like the watermelon with the citron it is not unfrequent.

The effect of the cross, however, is not apparent the first year and shows itself only in the product of the seeds of the crossed specimens. In practice, therefore, all of these cucurbits may be grown side by side without injury or loss to quality in any of them. The seed from specimens grown in a mixed plantation should not be saved for future planting.

Guelph.

H. L. HUTT, O. A. C.

Wild Ginger.

1166. Will you kindly let me know through your magazine if the enclosed leaf belongs to the much valued ginseng root?

Fergus.

F. TOBIN.

The leaf which you send is that of the wild ginger (*Asarum Canadense*), a plant in no way related to the ginseng, which belongs to the Aralia family. Ginseng may be easily known by the following characters: The plant bears only one stem each year, on the summit of which are three leaves on long petioles, each leaf consisting of five petioled leaflets. From the point where the three leaves are borne at the summit of the stem, a small umbel of greenish white flowers is thrown up. Late in the season these flowers are followed by bright scarlet berries.

C. E. F., Ottawa.

J. FLETCHER.

Budding and Raising Cherries.

1167. SIR,—Please give instructions for propagating and growing cherries.

A SUBSCRIBER.

The growing of fruit trees is a comparatively simple matter, and many a farmer who desires to plant a large orchard and can with difficulty afford the expense of buying the trees, might raise a few hundred for himself.

Cherry trees are usually raised from the seed. The pits may be sown soon after being gathered, or if stored until spring they need to be mixed with earth and kept in a cool place. Every precaution must be taken to prevent the pits becoming hard and dry before they are planted, or they will not germinate. The second summer after sowing, the seedlings may be budded in the same manner as peaches, except that it must be done earlier, just when the bark lifts easily.

Usually the pits of the Common Black Mazzard are used as seeds, especially for raising stocks for the sweet varieties. For the Kentish and Morello varieties, and sometimes for the sweet, the Mahaleb is often used, a common variety from Southern Europe which is imported for sale. It is a slower grower than the Mazzard and has a tendency to dwarf the variety budded upon it.

The cherry may be also propagated by grafting, but as a rule this method is not employed by nurserymen for raising young trees.

Sweet cherry trees for orchard cultivation should be planted twenty feet apart each way, on dry sandy soil, well enriched and cultivated. Some people say that they need no cultivation and think the only place for them is in neglected fence corners, but this is an exploded notion. Three years of cultivation of a cherry orchard at Maplehurst has brought the trees into great vigor, size and productiveness, much sooner than trees of the same age in sod. The pruning knife needs to be applied with caution, for

the cherry tree seems to resent much cutting; but heavy pruning may always be avoided by the frequent and regular use of the knife or grape pruning shears. Limbs that cross should be removed, and long limbs should be shortened to encourage branching.

It is not well to plant too heavily of one variety unless plenty of pickers can be relied upon, for such small sized fruit requires many hands to gather it. One might cover the season for over a month with such a list as the following:

Sweet—Early Purple, Knight's Early Black, Governor Wood, Elton, Napoleon, Spanish, Tartarian, Elkhorn and Windsor.

Sour—Early Richmond, Montmorency.

Morello—Wragg and English Morello, Koslov Morello.

Gillett's Lye.

1168. SIR,—Please state in your next issue if the above article is any good, and oblige

AN AMATEUR.

This is simply an excellent brand of condensed lye, and a convenient form in which to purchase and handle the same. It is very strong and effective for destroying aphids and other soft bodied insects by contact with their bodies, which are burned up thereby. Before the foliage appears the trunk and limbs may be washed with a strong solution, and the result will be to cleanse the wood of both insect and fungi, and make it vigorous and healthy, a result similar to that obtained by the application of whale oil soap.

We have been applying Gillett's lye to our rose bushes in May and June for the destruction of aphids and rose hopper. We used a ten cent package to five gallons of water, and the result was quite satisfactory, although some of the leaves were slightly burned. It is very convenient of application with one of Mitchell's hand sprayers.

Kerosene Emulsion.

1169. SIR,—Please give a receipt for making Kerosene Emulsion. I have several, but cannot understand them, neither can I find any one around here who can. How many gallons, not parts of water, should I add to half a pound of soap, two gallons of kerosene and one gallon of water. When would you recommend spraying with this?

J. H. HELM, Port Hope.

In making Kerosene Emulsion we would advise using soft water for dilution. The formula referred to by our correspondent is Cook's, and is as follows:— $\frac{1}{2}$ lb. hard soap, 1 gallon boiling water, makes strong soap subs, and add two gallons kerosene while boiling, stir well and an excellent emulsion will be formed. From this stock solution a little may be taken at a time and diluted with soft water whenever required for use. In diluting it is usual to make the kerosene about 1-15th of the whole; so that if the whole of the stock solution were needed at once, thirty gallons of water should be added.

But different strengths are used according to the tenderness of the foliage, and to every quart of the three gallons of stock solution which you take out for use, you may add from 4 quarts to 25 quarts of water; the latter of course being a very weak solution.

This is very effective for aphid if used pretty strong. It may be applied at any time in the season, but for aphid it should be applied before the leaves are fully expanded and begin curling up, and for oyster shell book louse the best time is the first part of June, when the young lice are most easily destroyed.

Cranberry Culture.

1170. SIR,—I write to you to know if you can give me any information on growing cranberries. I have a swampy place which has deep muck, would that be the right kind of soil to grow them? Will you please let me know through your next journal the kind of soil, how to prepare it, how to get the plants, how long before they would bear fruit and if you would think it a profitable business. You will please let me know everything in connection

with the growing of them, as I know nothing about it myself. The place I have is covered over with grass and shrubs; water lies on it, but the muck always seems to be wet.

Orangeville,

WM. FOLEY.

Cranberry growing is not always a success. A large bog was made artificially at Walkerville, at very great expense, and has so far proved a failure. But where natural conditions are favorable, so as to reduce the great expense of establishing the plantation, they are usually profitable, for after the bog is once completed and the vines in bearing condition, the culture is simple and inexpensive. The *New England Farmer* gives the following instructions for preparing and planting a patch: A piece of low, swampy territory is selected to begin with. From this all the trees, bushes, or whatever growth may exist, are thoroughly cleaned out and the roots eradicated. Then the turf or dirt is taken off and the bog ditched and leveled. The old fashioned way of getting the level by the water and straight edge can not be improved upon for accuracy where the bog is well ditched. The level place is then covered with some four inches of coarse sand—some put on five—and the coarser the sand the better, if it will not interfere too much with the growth of the vines. The bog is then ready for the planting of the vines. The only fertilizer employed is to sometimes put a trifle of guano on the top of the plant, which works down through the sand to the roots of the vine. Three years must usually pass before the vines bear fruit, and they are generally not in bearing condition until the fourth year after planting. Some bogs on the Cape are still in good bearing condition that have yielded fruit for more than thirty years. Sometimes the vines are mowed down closely, but they come up again and bear more vigorously for cutting. The chief attention required is to keep down the weeds and rushes, which are usually not troublesome if not neglected, and to watch the enemies of the vines, the principal of which is what is popularly known as the fire worm. If they get in unobserved, a promising lot will be completely ruined in a few days, and they do their work so rapidly that they are well named the fire worm. Of late years they have been quite destructive. The remedy for them is a tobacco wash and it generally proves very efficacious if applied in time. The cost of producing a barrel of Cranberries all ready for market varies from three to four dollars a barrel of 100 quarts. It is safe to put down the average market value at \$7.00 per barrel.

Open Letters.

Grapes in Nova Scotia.

Grapes do not grow very rapidly. I have two varieties, the Early Amber and the Green Mountain, set two years. They have made a very poor growth. We have a great deal of fog during the summer. The soil is very shallow here, not more than ten or twelve inches, and is very heavy; holds water. The ground at present in our fields is about as soft as when frost first left the ground. Have had a great quantity of rain. Very little seeding done as yet; some have not any seed in ground. Have a lot of gooseberry and raspberry bushes. They seem to do well, with the exception of gooseberries, which break down badly in growing season, owing to rapid growth and being wet.—Yours truly,

ARTHUR C. SABEAN.

Rossway, Digby Co., N. S.

Fall Planting.

(SEE QUESTION 1156.)

SIR,—I have just received the June number of "Horticulturist," and wish to congratulate you on the constant improvement taking place in your valuable journal. This is certainly a very good number.

I, however, notice one great mistake, which I think would not be made if a little thought were given.

A gentleman writes, asking whether it would be best to buy his trees in the Fall, and bury, or wait until Spring. You simply say that it means extra work to get them in the Fall, and he should buy in the Spring. No nurseryman would give such advice, and we believe a nurseryman's advice on this point is better than the average planter's.

If it were possible to get trees just the moment you were ready for them, in the Spring, then it would be all right, but such is not the case with any nursery doing business of any amount. Especially is this the case with such seasons as the last. Frost held in the ground until nearly the middle of April, then it came very hot, buds were forced, and it was almost impossible to get stock out in good condition. Even working a big force from daylight until sundown, it will take at least three weeks to dig, pack and ship orders from any responsible nursery concern doing a good business. Then another week is sometimes added before stock

can reach destination, varying of course according to distance. This brought, this year, the delivery of trees in May instead of April.

Trees obtained in the Fall, as I know, when properly handled, either when buried or planted out permanently, were almost in full leaf before trees ordered for the Spring could possibly be delivered.

Even if a little extra work is necessary, if a man has his trees on hand in the Fall, he can plant just as early as the season will admit in the Spring, and he certainly has an advantage over the man who orders stock in the Spring, as a rule.

Then another point regarding the buying of stock in the Fall. Very few nurseries run out of varieties in the Fall, as the bulk of the business is done in the Spring. Those who buy in the Fall can always be sure of obtaining the varieties they desire, whereas in the Spring we are obliged to stop the sale of many varieties because they are sold out. It is impossible, always, to tell what varieties will be in demand. You cannot plant so as to always have the required number of each variety on stock, consequently if there is any shortage it comes on Spring sales.

I have watched this matter carefully for twenty years, and I find that getting stock in the Fall is more satisfactory to everyone in the long run.

There is less stock lost in the Fall, according to the number planted, than there is with Spring-planted stock.

There has been an unreasonable prejudice by many against getting stock in the Fall, mainly, no doubt, because they have to pay for the stock a few months before it begins to grow, but there are advantages that will certainly over-balance any objections that can be raised against buying stock in the Fall.

I believe, in most sections, stock can be planted out in the Fall, a little extra care being given to plant deeply and bank the trees six inches to a foot in height. This banking can be drawn away in the Spring as soon as the frost is out.

Very few people will take the pains to mulch in the Spring, and unless Spring-planted stock is heavily mulched there is much loss, especially when we get a dry season, as we have had this Spring. Trees will start, but the ground soon gets so dry that the young fibres cannot obtain nourishment and the trees go back.

The grumbler's rule is: "If trees fail in the Fall, blame the Winter; if they fail in the Spring, blame the nurseryman." The very opposite should be the case, if failure is ascribed to these causes.

In the Fall the nurseryman can send out stock in a perfectly dormant condition, and if it is at all properly handled I will guarantee that there is 50% less loss obtaining stock in the Fall than there is buying it in the Spring.

As nurserymen, we try our best to get the stock out at the earliest possible moment in the Spring. We are anxious to do this for several reasons, one of which is, we have our own plant-

ings to attend to, and that cannot be done until we have shipped stock to our customers.

Then again, we are anxious to get the business over and collections made, and there are other reasons which urge nurserymen to use all expedition, but in spite of all our efforts, it is impossible in all cases to get stock out as early as it ought to be, in the Spring, for successful planting.

I believe, too, that stock handled in the Fall will stand fumigation better than in the Spring. I am satisfied, at certain advanced stages, the fumigation is injurious to nursery stock.

Everything being considered, I think your view a mistaken one regarding obtaining trees in the Fall.—Yours truly,

Toronto.

W. E. WELLINGTON.

A Line From Mr. Burbank.

SIR,—Your esteemed note of March 8th and Report of Fruit Experiment Stations received. *I very highly appreciate the report.* It is an extremely valuable guide, and especially useful to me in guiding my experiments in the production of *hardier* fruits, which I have been pursuing for the past eight years as a specialty. I have no trace of scale in my grounds anywhere. It has wholly disappeared several years ago, and is now forgotten as a thing of the past. No doubt the *Vedalia* *Cardinalis* and other insect enemies have exterminated it *completely*. I shall be greatly pleased to have my new fruits grown there. Climate is one of the most promising for hardiness. Shiro and Sugar prune next; probably Sultan, also, may prove hardy. These fruits are a very great improvement on the ones first sent out, and will amaze fruit growers if they thrive there. My Paradox Walnut will not be hardy; Royal will be wherever the American Black is. I have no fresh stratified nuts of either now. Again thanking you for the extremely valuable report, I remain, faithfully yours,

Santa Rosa, Cal.

LUTHER BURBANK.

Fruit in New York Market.

SIR,—A few days ago I called at a first-class fruit store at the corner of Broadway and 28th street in this city and enquired the retail price of prime fruits. Easter Beurre pears were 18 cents each, or \$2.00 per dozen. They were as hard as stones, but soon ripen in a warm room. Size very large, and perfect in appearance; quality A1. Winter Nelis, prime every way, 15 cents each, or \$1.50 per dozen. Patrick Barry, large and very handsome, rich orange russett, same price. I have one to ripen weighing nearly a pound, without a blemish, price 15 cents. Apricots, 50 cents per dozen. Prime grape fruit, 60 cents each. Black cherries from California, best best 60 cents per pound; second quality, 30 cents. Best navel oranges, 10 cents each, or \$1.00 per dozen. Strawberries of best quality, 35 cents per quart. There were fine hot house grapes at \$2.00 per pound. Colossal asparagus, 50 cents per bunch; last year it was 90 cents. Long English cucumbers, grown under glass, 25 cents

each. There is no surplus of prime stock at these prices.

In some sections of California all boxes of oranges are the same size. The best contain 84 oranges. These retail at 10 cents, or \$8.40 per box. Next quality, 96 in box; 3rd quality, 120; 4th quality, 144. These retail at 2 for 5 cents and bring, as you will see, \$3.60 per box. The tree that bears the best fruit is not over-loaded and is kept healthy.

The lowest grade comes from bad care, poor soil and over-loading. The market is glutted with this quality, but never with the best. Farmers fatten cattle by good care and feeding. Good fruit must have the same treatment. You cannot cheat a milch cow of food and care without loss of milk; nor a hill of corn; neither can you cheat a fruit tree. The largest profit is in the best quality, and the demand is unlimited.

Some prime Northern Spy, such as I have had at Oshawa, would retail at 5 and 10 cents each.

New York.

FRANCIS WAYLAND GLEN.

A Correction.

SIR,—In the April issue of the "Horticulturist" appears a letter over my signature in which I make certain charges against David Cantelon, apple dealer, of Clinton. I find that the statements I there made use of prove to be wholly untrue and unfounded. I now beg to withdraw and contradict them and to apologise to Mr. Cantelon for having made use of them. I believe Mr. Cantelon to be an honorable and fair-dealing business man. I had no desire to misrepresent or injure him, and my only excuse for making use of the statements I did is that I am very deaf and misunderstood what was told to me.

I desire to make what reparation I can, and you will oblige me by giving this communication the same publicity as you gave to my said letter published in April.—Yours truly,

Witness, W. Proudfoot.

WALTER HICK.

Goderich, May 31, 1900.

Crop Prospects.

SIR,—In looking through the orchards, I find there is a very good show of blossom on the cherry and plum trees. Pears very fair of bloom, some trees not much. Apples generally very good; some trees are very full, others have scarce any blossom. On the whole there is likely to be a very fair yield. The season has been very favorable both winter and spring.

Goderich.

WALTER HICK.

Pears for Market.

The varieties I would advise all growers to grow for home or foreign markets are as follows: Bartlett, Beurre Bosc, Beurre Clairgeau, Doyenne de Comice, Sheldon, and Beurre d'Anjou, if first worked upon, the Keiffer, to make them bear more prolific, as they are shy bearers. The Duchess d'Angouleme may also be added to this list as a dwarf tree, and Doyenne Boussock as a standard; also, Lawrence for winter.

R. CAMERON.

IMPORTANT TO WINE MAKERS—HOW TO MAKE CURRANT AND OTHER WINES.

THE currants should be perfectly ripe when gathered; they should be stemmed and washed before pressing, which must be done as thoroughly as possible with a 12-inch cider press. Ascertain the amount of juice thus obtained, and then add that amount of water to the same pumice and incorporate the water and pumice well together; let it stand a few hours and press it again. By this process an additional quantity of juice, though not so strong, is obtained; then mix the first pressing with the second and weigh a gallon of it, and whatever it falls short of 10 pounds to the gallon, add enough of good Havana sugar to make it weigh 10 pounds, and so on with the rest. I would here remark that an additional amount of sugar added to the above will make a sweeter wine, and perhaps more suitable to the taste of many. It would be rather an expensive business to those who have but few berries to make currant wine from the first pressing of the currant alone, as it requires one bushel of currants to produce a little over three gallons of pure juice. The red currant pure juice weighs $3\frac{1}{2}$ pounds to the gallon. The white currant pure juice comes almost within the winemaker's rule, weighing $9\frac{1}{4}$ pounds to the gallon. The way in which I make currant wine is to use the pure juice alone, or without much water, and I find that I can readily command \$3 per gallon for it, whereas the other would be dear at \$1 per gallon, and not much of a wine at that. Elderberry wine is made in the same way as first stated, adding about half water in the way of repressing the pumice, etc., as if it is made without the addition of too much sugar it resembles claret very closely. Black currant wine is made in the same way as the

elderberry, only the berries should be scalded before pressing, and if carefully managed in the fermentation will resemble the Rhine wines. When the juice, sugar and water are well incorporated by stirring together until the sugar is dissolved, it is then placed in an open tub in a temperature of about 60° F., there to stand a few days until the froth and impurities rise to the surface, which must be removed as often as it accumulates, and when the liquid becomes limpid and somewhat transparent, then it is placed in a clean barrel to within 5 or 8 inches of the bung. A rubber tube passed through a cork which fits the bung-hole, and kept air tight with wax, is then inserted into the bung about two inches, the other end passing into a pail of water to the depth of 3 or 4 inches. This is done to prevent the oxygen of the air penetrating the fermenting mass, and also to retain much of the finer aromatic essences which are so essential to fine flavored wines.

A great advantage is also gained thereby in rendering it less necessary to keep watch over the fermentation as pursued by some in keeping the barrel bung full by replenishing with some of the same standing near at hand, which becomes pricked before fermentation has ended, rendering it in the end little more than sweetened vinegar. No admixture should be attempted after fermentation has commenced, and if the temperature of fermentation is kept at about 60° or 65° F., for about six weeks or two months, it will be ready to remove the tube and fill the barrel bung full of the same, made in a separate vessel for that purpose. Then put the bung in moderately tight for a few days, and after that drive the bung in tight until about December, when it must be racked off

from the lees, the barrel rinsed with hot and cold water, and when drained quite dry insert into the bunghole a small cup, suspended by a wire, containing one ounce of spirits of wine or alcohol, ignited, and kept there until the barrel is well fumigated; the bung must not be closed. Then return the wine again and keep it there for three months, when the same process is repeated. If it is done a third time it will be all the better. It is now finished, and can be kept any length of time either in bottles or wood, slowly improving by age.

Grapes may be made into wine in the same way as first mentioned above, with this difference—that when the pumice is to be repressed, that sugar dissolved with grape juice (by heat) must be added to the water that is mixed with the pumice, and to stand a few hours before the second pressing. It must contain the same proportion of sugar and water as is found in the natural juice of the first pressing, all of which is mixed well together and fermented as above. But if

the grapes are left on the vine until they are quite ripe, say until they have received the effects of a white frost, and carefully selected, the good from the bad, and thoroughly pressed and fermented as above, without the addition of either sugar or water, you will have wine that *is* wine. It is true we cannot have so great a quantity of juice, but what there is, is good.

P. S.—The object of the fumigating process is to prevent undue fermentation. The same effect is obtained in putting a 1,000th part of powdered mustard into the wine; but how it acts is unknown.

This article would be incomplete if I omitted to give your numerous readers Pasteur's method of preserving wine indefinitely by heating it to so many degrees; it then possesses all the virtues of old wine. But as this article is lengthy, I will defer it for a future number of *The Horticulturist*.

F. W. PORTER.

Mt. Forest, Ont.

A STANDARD APPLE BARREL.—Believing as we do that the barrel as a package for apples, potatoes, etc., will never pass away, it is most important that the Dominion should settle upon a uniform size—a size that would be acceptable for the whole continent. The present legal apple barrel in Canada is of the following dimensions: Staves, from croe to croe, 27 inches, or about 30 inches long; head, 16½ to 17 inches, as nearly cylindrical as may be. A recent proposed statute to come in force July 1st, 1900, calls for a barrel of nearly the same dimensions, viz: Staves, croe to croe, 27; head, 17; bilge, inside measure, 19. Since this statute was framed the American Apple Shippers' Association have agreed to buy and sell apples in barrels of

which the measurements are as follows: Staves, 28½ inches long; head, 17¼ inches; circumference, or bilge, 64 inches. This barrel will hold only 96.51 imperial quarts, dry measure; while the barrel proposed to be adopted July 1st contains 103 imperial quarts. The United States quarts are smaller than ours, so the former barrel would contain an even hundred of them, and is known there as the one-hundred-quart barrel. The same barrel would hold 174 pounds of potatoes, an important product of Nova Scotia, which that Province would desire to export to the United States. For these and other reasons the Nova Scotians are most anxious for the adoption by the Dominion of the 100-quart barrel.



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PAN-AMERICAN EXPOSITION, 1901.

HORTICULTURISTS have abundant reason to feel a lively interest in the great Pan-American Exposition to be held in Buffalo in 1901. In the embellishment of the grounds the architects have planned to use trees and shrubs, foliage and flowering plants in quantity to dazzle the lovers of fine horticultural displays. The extensive area of the Exposition grounds affords abundant room for the elaborate pageantry of color that is here contemplated. There are nearly 350 acres in the Exposition site, of which about one-third are the improved lands of Buffalo's beautiful Delaware Park. Upon the park lands many thousands of dollars have been expended from year to year in the past in maintaining and improving the variety and display of rare shrubs and trees. This portion of the landscape includes a park lake of irregular shape. It is charmingly picturesque when the shores are clad in their summer garb of foliage. This part of the park will receive special attention in preparation for the coming Exposition.

Lying directly north of the park lands and upon a higher elevation is the remainder of the Exposition plot. Included in the plan for the arrangement of the buildings is a magnificent court 3,000 feet long, with a

transverse court 1,700 feet from east to west, besides subordinate courts. All of these open spaces are to be beautified with palms and other tropical plants in tubs and vases, placed near the surrounding buildings and beside the fountains and pools. To these will be added sunken gardens of elaborate arrangement, and formal flower beds wherever their presence will enhance the beauty of the courts. The various buildings of the Exposition are to have red-tiled roofs, and the walls are to be tinted in a variety of colors so that the brilliancy of the architectural works will vie with the blossoming beds to fascinate the lovers of fine color effects. Among the flowers and foliage plants will be many sparkling fountains to enliven the beauteous scene. The water features of the Exposition include a grand canal more than one mile in length, which completely encircles the main group of buildings. Lagoons with sodded banks and shaded with a variety of trees shoot off from the main canal at various points and add their beauty to the landscape effect. The entire outer wall of the Exposition grounds is to be a bank of solid foliage. Many thousands of trees, shrubs and cuttings have already been planted in preparation for the elaborate horticultural features. Large trees, which fortunately

were already upon the Exposition site, have been preserved by transference to places where their stately shafts of green would heighten the color effect in contrast with the brighter hues of the buildings.

The building to be devoted to the Department of Horticulture, of which Mr. F. W. Taylor is chief, is 220 feet square. It has two arcaded wings sweeping from the north and south facades to the eastward and connecting with other buildings to form a semi-circular court. West of these arcades are the conservatories, in which will be displayed the palms and other plants of tropical origin. The arcades leading from the main building will be kept gay the entire season with flowering and ornamental plants. The large building will be used for the display of fruits and various other exhibits pertaining to horticulture. It is expected that the state of New York will spend at least \$10,000 in aiding the horticultural societies of the state to extend and replenish their exhibits during the season of the Exposition. The Horticultural Building will be one of the most picturesque of the entire group of large Exposition buildings. The loggias which form the eastern entrance will be richly adorned with frescoes. Two of these compositions will represent Ceres, the goddess of the harvest, bearing in her arms a sheaf of wheat, her chariot drawn by three lions led by Flora and Primavera.

The exhibits to be made by the leading florists of the United States will be situated south of the Horticultural Building. To these displays some six or seven acres of land will be devoted. William Scott, of Buffalo, a prominent florist and well-known contributor to literature upon flowers, will have charge of the floral exhibits. Several prominent horticulturists have already entered for the competition of 1901. In these displays there will be over 500 beds, in which will be shown every popular flower known, from the low-growing verbena to the stately

dahlia and hollyhock. There will be large exhibits of hardy perennial plants, such as Delphinium and Helianthus, Phlox, Tritoma and other leading hardy flowers. Of the hardy annuals there will be many examples of choice varieties that do so well in our summer months. There will be numerous specimens of the summer climbers, conspicuous among which will be the new varieties of the gorgeous Clematis. The water gardens, of which there will be a number in various parts of the grounds, will be important and attractive features which will include in their displays besides the mammoth Victorian Regia of the Amazon and the Nilumbiums of the Nile, many Nymphaeas never before exhibited. When at their best there will be special exhibitions of roses, dahlias, gladiolus, sweet peas, chrysanthemums and other peculiar flowers. Exhibits from all the large growers of the country are assured.

Horticulture has made wonderful strides within a very few years, and many of the floral specimens which will be seen at the Pan-American Exposition were not in existence at the time of the World's Fair at Chicago. The displays of the now popular canna will surpass anything yet seen either in America or Europe. One may therefore confidently expect this Exposition to be, from the view point of the horticulturist, the most brilliant ever held.

The gates of the Exposition will be opened on May 1, 1901, and closed on November 1 of the same year, giving six full months for the enjoyment of the wonderful displays there to be assembled. The buildings of the Exposition comprise more than 20 large architectural works, and the smaller buildings are numbered by the hundred. The largest of the buildings are those devoted to Machinery and Transportation and Manufactures and Liberal Arts, each covering about four acres. The Agricultural Building will cover nearly two acres, and the Electric-

ity Building the same. The Main Government Building is 600 x 130 feet, with a dome 250 feet above the main floor. The lesser buildings of the group are each 150 feet square, connected with the main structure by curved arcades, the three structures enclosing a semi-circular court which opens to the west. The Ethnology Building and the Temple of Music are each to be about 150 feet square. The Stadium, or sportihg arena, with the ornamental buildings which forms the entrance, will cover about 10 acres. It will have a seating capacity of 25,000 people, and will contain a quarter-mile track and abundant room for all the modern athletic contests. The live stock display will cover about 10 acres, and to the "Midway," or pleasure ground, about 20 acres have been allotted.

The Electric Tower, which is to stand in a broad aquatic basin, will be 348 feet high, the main portion of the tower being 80 feet

square. The position of the tower is between the Agricultural and Electrical Buildings, dividing the Court of the Fountains from the Plaza, and it will be the centerpiece of the Exposition. It is intended to have the electric displays the most elaborate ever undertaken. The nearness of Niagara Falls makes this possible, on account of the unlimited power developed from the great cataracts and transmitted to Buffalo by means of large copper cables. It is expected that between five and six million dollars will have been expended on the Exposition buildings and grounds before the installation of exhibits begins. The work of preparing for this great, All-American display is proceeding with commendable speed and system, and the plans are such that it will be completed in ample time for the opening of the gates on the date announced.

MARK BENNITT.

THE Bosc pear is rather gaining in favor, especially as a shipper. A writer in the California Fruit Growers' Journal says of it: The Bosc pear will never be a glut in the market, for the reason that the tree grows so crooked and slowly that nurserymen will not grow it. Those who buy trees, says Edwin Hoyt in Rural New Yorker, do not understand that there is as much difference in the habit of growth in trees as there is in animals, and are not willing to pay any more for one tree than another of the same species. If a nurseryman were to bud 1,000 stocks to Bartlett he would, no doubt, get 900 good trees, while if 1,000 stocks were budded to Bosc, he might not get more than 100 good salable trees, and many of these might have to be staked while growing to get the body up straight so as to make a tree a customer would

receive if sent to him. Many nurserymen grow a few Bosc by top-working them, that is, by budding the Bosc in the top of some strong-growing variety like Clapp, Buffum Anjou. To raise the trees this way, the nurseryman has to charge more for them to pay him for his extra trouble. If one wishes to obtain a Bosc pear orchard, the best way to get it is to set Clapp or some strong-growing variety. Let it grow two years, then top-graft it. This, of course, is some trouble and expense to do, yet the one who does it will get a good paying pear orchard, for this variety will never be overproduced. It is a fine pear, a heavy bearer, and usually grows smooth and fair with good feeding and cultivation, such as any orchard should have for profit." Our plan at Maplehurst is to grow Keiffer as stocks and top-graft them with Bosc.

OUR BOOK TABLE.

MODERN HOUSE PLANS FOR EVERYBODY.—For village and country residences, costing from \$250 to \$8,000, including full descriptions and estimates in detail of materials, labor, cost, and many practical suggestions. By S. B. Reed architect. Illustrated, 12mo, pp 243. The Orange Judd Company. Price, postpaid, \$1.

From its first appearance, House Plans for Everybody has occupied the first rank among architectural books. The plans comprise almost every variety of arrangement and style; each one is accompanied by a detailed description of its convenience and construction; and its cost is shown by careful estimates, made to correspond with a uniform standard of prices at present rates. So carefully have the standard features of home buildings been considered in the original edition that there was but little need to change the text, or floor plans. In the matter of outward dress, however, nearly all the elevations have been redrawn, with special regard to modern ideas and tastes and in this respect it is especially invaluable.

ANNUAL REPORT of the Fruit Growers' Association of Nova Scotia, 1900. Annual meeting at Wolfville, Jan. 29th, 30th and 31st. S. C. Parker, Secretary, Berwick, N. S.

THE SAN JOSE SCALE and other scale insects prepared for the use of fruit growers and scale inspectors by Wm. Lochhead, B. A., M. S., O. A. C. Guelph. This is a most valuable bulletin, well illustrated with original drawings. It may be had free on application to the Ontario Department of Agriculture, Toronto.

A TREASURY OF CANADIAN VERSE, selected and edited by T. H. Rand, D. C. L., Toronto. An invaluable collection. Price only \$1.25.

COMMON DISEASES and insects injurious to fruits. Bulletin 170, Geneva, N. Y.

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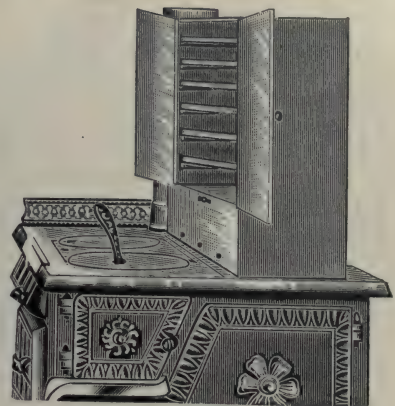
A. G. HULL & SON, St. Catharines.

A New Romance by Julia Magruder.

"The Voice in the Choir" is the latest romance from the pen of Julia Magruder, and its publication will begin immediately in the June Ladies' Home Journal. It is a love story that has its inception through an accidental meeting in a church choir, and which by strange accidents is shifted to the hospital tent in the wake of an invading army. Miss Magruder heightens the charm of "The Voice in the Choir" by uniquely veiling the climax.

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The Richest Woman's Story.

How Hetty Green, the famous financier, who enjoys the distinction of being the richest woman in America, has made and kept her millions will be told for the first time in the June Ladies' Home Journal. In view of Mrs. Green's vast wealth, so great that she herself cannot exactly compute it, the story of her home life will also be especially interesting, by reason of its extreme simplicity. In the article Mrs. Green tells how she has bought and sold railroads and towns, and how she has compelled political managers to do her bidding—showing the enormous power of money in these golden days. Her daily life, too, is interesting, for early and late she is at her task of watching her wealth and eagerly adding to it, being a stranger to almost any other recreation. Several pictures of the woman with millions, made expressly for the article, will give it additional interest.

ONTARIO FRUIT CROP.

Scale.—Very good, good, fair, poor, very poor.

	Apples.	Black-berries	Cherries.	Currants.	Grapes.	Pears.	Peaches.	Plums.	Goose-berries.	Rasp-berries.	Remarks.
Burlington District, A. W. Peart, Freeman	fair	fair	fair	fair	fair	poor-fair	poor	poor-fair	...	fair	Spraying quite gen-eral.
Grenville and Dundas Co. W. A. Whitney, Iroquois	good	...	good	very good	good	good	...	very good	very good	very good	
Lincoln Co. A. M. Smith, St. Catharines	good	...	fair	...	fair	fair	very good	fair	...	fair	
Wentworth Co. M. Pettit, Winona W. M. Orr, Fruitland	very good	...	good	...	fair	fair to good	very good	good	...	...	All fruit free from fungus.
Victoria Co. Thos. Beall, Lindsay	good	...	...	good	fair	very good	...	none	good	very good	
Orillia, C. L. Stephens	fair	...	...	very good	...	...	...	none	very good	good	Apple trees very clean.
Ottawa District, R. B. Whyte, Ottawa	fair	...	fair	fair	very good	...	...	good	good	good	
Georgian Bay District, J. G. Mitchell, Clarksburg	poor	...	very poor	very good	good	poor	...	very poor	very good	very good	
Simcoe Co. G. C. Caston, Craighurst	fair	...	poor	...	...	good	...	very poor	...	good	Caterpillar and canker worm des-troyed orchards where no spraying was done.
Trenton, W. H. Dempsey	fair-poor	..	very poor	good	...	...	...	very poor	...	...
Grey Co. J. I. Graham, Vandeleur	poor	...	poor	...	fair	fair	...	very poor	...	...
Ontario Co. R. L. Huggard, Whitby E. Lick, Oshawa	good very good	very good	fair-poor	good	good	good	...	none	good	good	
Grenville Co. H. Jones, Maitland	fair-good	good	..	...	...	good	...	fair	very good	good	
Essex Co. A. McNeill, Walkerville	good	very good	poor	poor	very poor	fair	good	poor	...	poor	



FIG. 1857. FRUITING BRANCH OF REINE HORTENSE CHERRIES.

Photo. by Miss Brodie.

THE CANADIAN HORTICULTURIST

Vol 23 1900 No 8

** AUGUST **

CHERRIES IN 1900.

THE first of the tree fruits to ripen is the cherry, and its comparatively small size renders its harvesting quite a serious consideration, especially if the acreage is large. A solid block of cherry trees planted for profit is not often seen for this very reason, but where plenty of pickers are obtainable in cherry season, there is no reason why such a block should not be planted.

Fig. 1858 shows a view in the experimental plot at Maplehurst five years planted. These trees are on dry sandy loam, have been given clean cultivation and fertilized with wood ashes. The result of this treatment proves the absurdity of the common notion that the proper place for cherry trees is the fence row, and that cultivation is unnecessary. They have grown with double the vigor of trees not cultivated, many of the sweet cherry class being over 14 feet in height and 4 inches in diameter of trunk; also at this early age many of them are well laden with fruit. One of the Early Purple trees, a variety not usually very productive, has so responded to our treatment that it has been fully loaded now for two years in suc-

cession, but, ripening early in June, it is usually harvested by birds and boys.

The total number of varieties under test at Maplehurst is 62, and the different habits of growth are an interesting study. For example, Fig. 1866 shows a Morello tree a good type of the habit also of the Kentish cherries, for these differ from each other more in fruit than in tree; this class of trees forms a round head with slender branches and never attains much height. These five-year-old trees are only about 9 feet in height and 3 inches in diameter of trunk. The Montmorency is a great favorite as a market cherry in New York State, and certainly is a productive kind of pie cherry, far less subject to Curculio than the old common red. It ripens about the 1st of July, while the Early Richmond can be used for pies about the middle of June. For pies, the Early Richmond, Montmorency and Wragg or English Morello, would cover the season completely. Fig. 1859 and 1860 shows the bearing habit of the Empress Eugenie and of the May Duke, two varieties of Dukes which so nearly resemble each other that they are not

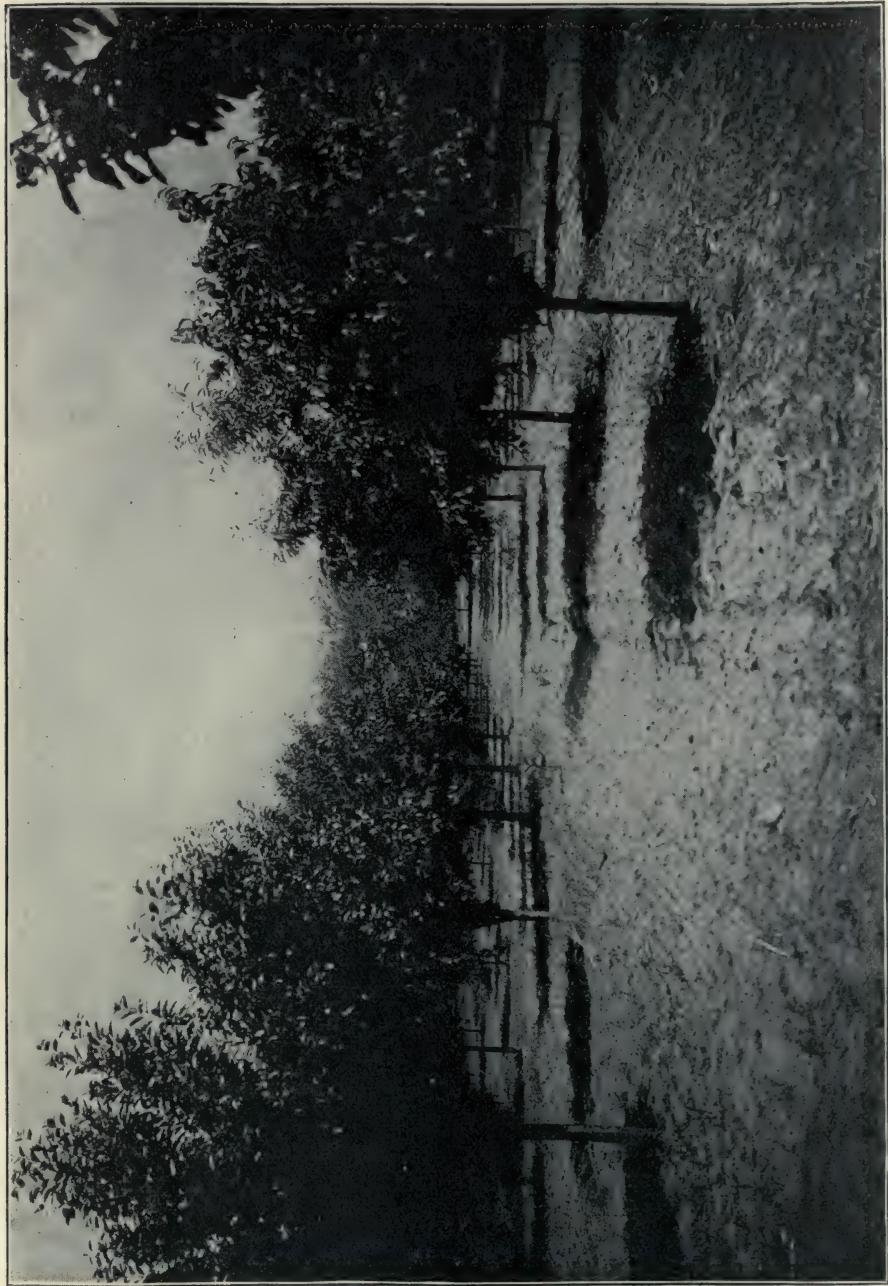


FIG. 1858. MAPLEHURST CHERRY PLOT, FIVE YEARS PLANTED.

Photo. by Miss Brodie.



FIG. 1859. EMPRESS EUGENIE (REDUCED.)

easily distinguished. Both bear in thick clusters all along the branches, and their mild acid makes them more desirable for pies than the Kentish varieties, at least to the taste of many people. They have one fault,

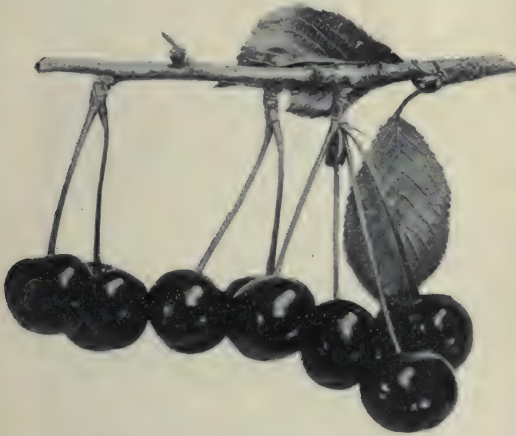


FIG 1860. MAY DUKE (REDUCED.)

viz., that of uneven ripening, often showing very green samples and very ripe ones on the same bunch. The Duke cherries may



FIG. 1861. BEARING HABIT OF CLEVELAND.



FIG. 1862. BEARING HABIT OF ELTON.

well be classed separately from all others, and Fig. 1863 shows a good type of the tree. This is a May Duke in our experimental plot, but the Royal Duke, Late Duke and the Empress Eugenie are so similar in habit that one tree will well represent them all. They grow upright and attain a con-



FIG. 1863. MAY DUKE TREE AT MAPLEHURST.



FIG. 1864 BEARING HABIT OF SWEET CHERRIES



FIG 1865. SWEET CHERRY TREE.



FIG. 1866. MORELLO TREE.

siderable height with little spread of branches. The leaves hang down in somewhat fastigate habit, and the fruit is borne all along the branches, well hidden among the leaves. The Reine Hortense is by far the finest Duke, but is so different in habit and so immensely superior in size and appearance to the others named, that it cannot be called a typical Duke ; indeed all these divisions are more or less arbitrary and shade more or less into each other. Fig. 1857 shows the bearing

habit of this variety ; the cherries do not hang in bunches, but in ones and twos, an excusable fault in a cherry so large and fine as this one is.

The members of the Board of Control of our fruit stations visited our Orchard on the 3rd of July, and the general verdict was that the Hortense with its load of fruit, was alone worth a journey to see. Our frontispiece, from a photograph by Miss Brodie on the 6th of July, well represents a fruiting branch

from one of these five year old trees, and will give our readers a good idea of its productiveness this season. The fruit is too soft for long shipments, but for the amateur we know of no equal to it for cooking purposes.

The bearing habit of the sweet cherries is shown in Fig. 1864, which is a photo of Governor Wood. These trees are very vigorous, upright and spreading in growth and form very large trees. (See fig. 1865.) Governor Wood and Cleveland very much resemble each other and are of the same origin, but of the two, we think the latter is the finer cherry, both in beauty and in flavor. Fig. 1862 shows a branch of Elton cherries from one of our five year old trees and for productiveness it certainly leaves nothing to be desired, while Fig. 1861 shows a bunch of Cleveland. Hearts and Bigarreus are both included under the Sweet Cherry class, and the latter are much the more productive. The Black Tartarian well represents the former, while the Napoleon Bigarreau is a good example of the latter. These often overload and rot badly from contact with each other in wet seasons unless sprayed after every rain with Bordeaux mixture.



FIG. 1867. SHOWING THE BEARING HABIT OF ROYAL DUKE.

PRUNING.—In the pruning of pyramidal fruit trees of all sorts care should be taken to encourage the formation of natural fruit spurs in preference to artificial ones; this is the rock on which many a young gardener and amateur has split by following the orthodox system of summer-pinching, as it is called. If a free growth is allowed during the summer and the branches kept thin, admitting the free circulation of sun and air among them, the wood will ripen properly,

and at the base of every leaf a bud is formed which will ultimately become a natural fruit spur. In the case of some varieties, such as the Jargonelle and Williams' Bon Chretien Pears, it will be found that the terminal bud of one year's growth will be a fruit or bloom bud; in such a case it will be advisable to pinch it out, which will strengthen the side buds, and in the following year they will become natural fruit spurs.—*Journal of Horticulture*.

A DOUBLE TRAGEDY.

Down from a twig on a Northern Spy tree
A canker-worm swung in security ;
He'd eaten all season since first he was hatched,
As a ravenous glutton he couldn't be matched.
He slipped inch by inch to the grass-covered
ground,
Where he thought safe concealment might surely
be found
In which he could pupate till autumn set in ;
But a hen came that way and she gathered him in.
Gathered — gathered — gathered — she gathered
him in.

She gathered him in, and his final rest
Was there, in there, in her well-filled chest ;
And she strolled around in search for more,
For it tasted better than aught before.
But I thought of her end, her final act,
When the farmer'd slice with a carver's tact,
And remark, as each piece made him look less
thin,
“ I gather her in, I gather her in.
Gather—gather—gather—I gather her in.”

—*Am. Agriculturist.*



FIG. 1868. REINE HORTENSE TREE.

UNIQUE FLOWER STANDS AND POTS.

THE ordinary flower-pot has been taken so much as a matter of course that few persons think of using any other receptacles for the plant growths with which they adorn their homes. Yet it is possible to utilize various articles common to most households and at the same time produce something appropriate to the flowers or plants that are put in them.

These holders, which are easy of construction, may, to a certain extent, take the place of the jardiniere that is now so common.

The Japanese have devoted much time and shown great skill in the arrangement of plants and flowers. They offer good examples of what may be done with a single plant or a few flowers. The results they obtain are artistic and compel admiration. It is often desirable to move plants from one room to another, or to use a single plant for a decoration; the various devices shown in the drawings (with one exception) may be very easily moved.

A hanging arrangement for flowers is shown in Fig. 1869. It is odd and effective,

and well worth the slight trouble and expense incurred in constructing it. A carpenter's assistance may be needed for this, and for some of the other designs, but all may be made by the amateur at trifling cost.

A child's hoop is used for the han-

dle. It passes through two pieces of three-quarter-inch stuff cut two inches wide, that are in turn nailed to two wooden towel rings, one above the other, eight inches apart. A circular piece of wood is fitted into the lower ring, and light strips of wood are tacked on, the whole forming a basket in which the pot is placed. Vines are planted and trained up and around the hoops.

Fig. 1870 is intended as a substitute for the fern dishes of silver that grace the dinner-table. This is the ordinary round wooden spice box known to many housekeepers. It is painted a pale cream tint, and when filled with growing ferns is quite as good in effect as the silver dishes, which, to my mind, always seem a trifle cold and metallic for flowers and plants. A Japanese stand gives style to this arrangement, which might otherwise be deemed quite commonplace.

This stand may be stained a dark sienna or ebonized. It should not be over three inches in height, as the plant must not be



Fig. 1870.

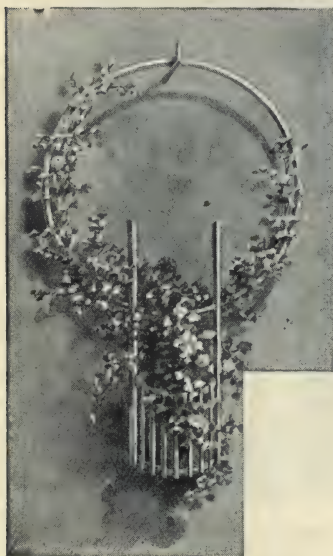


Fig. 1869.

over three inches in height, as the plant must not be allowed to interfere with the view of one's neighbor across the table and thus form a decided hindrance to sociability.

The design in Fig. 1871 is easily constructed and is unique in effect. It consists of a deep wooden bowl, supported by a stand built of laths nailed to a hoop of the same circumference as the rim of the bowl. It is about two feet in height. A vine is allowed to fall over and twine in this frame, breaking somewhat the rigidity of its lines.

This idea may be used also for potted plants, which could then be removed at will. In constructing it for this purpose



Fig. 1871.

omit the wooden bowl and simply use a hoop at the top like the one at the base, having it of a diameter a trifle less than that of the pot so that when placed in it the rim of the pot will project a trifle above it.

Another plan would be to again dispense with the bowl, and use a round, flat top of wood for the plants, thus producing a very convenient little low table which would prove especially attractive for the porch. It must, of course, be neatly finished and painted.

Fig. 1872 is designed as a receptacle for cut flowers rather than



Fig. 1872.

Fig. 1873 is designed as a receptacle for cut flowers rather than

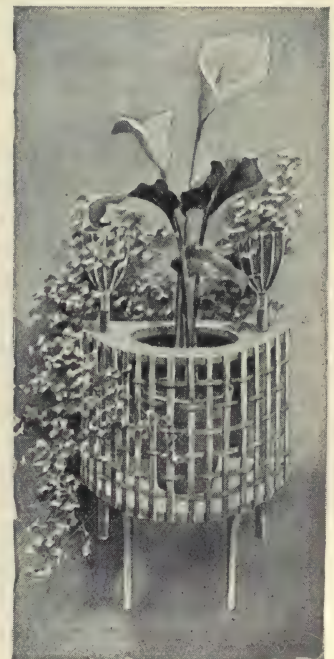


Fig. 1873.

It is Japanese in form, and if care is used in the arrangement of the flowers a rather quaint effect is produced. It is well to use sand at the bottom of the vase for inserting the stems of the flowers, as this will assist materially in arranging them. Such blossoms as the aster, daisy or chrysanthemum may thus be used.



Fig. 1874.

The design shown in Fig. 1873 is intended to be bracketed against the wall. Two semi-circular pieces of wood, half an inch thick and fourteen inches on the diameter, are fastened together twelve inches apart by thin strips of wood woven in and out in basket effect. A circle is cut in the upper piece, allowing a flower-pot with growing plant to be set in.

Through these two pieces, on each side, are run fruit-pickers, used by farmers for gathering fruits. The handles are cut to the proper length. The wire cup is used to clasp a goblet from which the stem has been broken. A small flower-pot may be used if preferred. From these cups vines may be trained.

The screen in Fig. 1874 stands three feet six inches high and is three feet wide. The box in which the pots are placed measures eight inches from front to back and seven inches in depth. It stands on short legs, or it may be put upon casters for convenience in moving around. The front of the box opens on a hinge at the base, allowing for the removal of the plants when desired. Wires are stretched from top to bottom for

the vines to twine upon. The screen has a very charming effect. It stands firmly, as all the weight is at its base. It may be easily moved, thus allowing it to be used as a back-ground for brilliant blossoms. Several of these screens placed side by side would be very effective in banking up the side of the room when special floral decorations were needed for any festive occasion.

Of course it is not necessary to adhere strictly to the lines and dimensions of the screen illustrated. Several other forms less severe in outline suggest themselves. A curved top may easily be produced by carrying up a hoop from the top at either side. A hoop also may be hung inside of the frame with good effect, allowing the vines to climb around it. If one objects to the boxed-up pots at the base this objection may be easily overcome by substituting a board and cutting round holes in it a trifle less in diameter than the diameter of the pots. The board should be set on a frame sufficiently high to allow the pots to clear the floor.



Fig. 1875.

In Fig. 1875 is shown a simple fruit-basket smoothed up and treated to several coats of paint. A hoop of appropriate size is nailed securely to its rim. This is so bent to harmonize with the lines of the basket, and besides affording a decorative feature, is useful as a means of lifting the plant. In painting these holders select such colors as will not offend good taste. Warm tints are the best, as they afford a pleasing

contrast to the foliage of the plant. Rich dark browns, dull reds, or pale cream tints are good and effective, yet quiet and restful to the eye. The basket is set on a light stand of polished wood, quite Japanese in design. Though very simple in construction, it gives distinction to the plant, and is a protection to the carpet or table on which it rests.—*From the Ladies' Home Journal, copyrighted by the Curtis Pub. Co., Phila.*

CARNIVOROUS PLANTS OF CANADA.

*Facilis descensus Avernii,
Sed revocare gradum.*—VIRGIL.



ALTHOUGH to the horticulturist as a commercial grower, flesh consuming plants may not be of special interest, yet as a student of plant life a brief account of how some plants obtain nitrogen may be to him both interesting and valuable.

Those that will be mentioned fall naturally into two groups, the one composed of those that capture by means of closed chambers or open pitfalls, so contrived that animals entering may not be able to get out. In some instances the pitfalls are made attractive by a display of brilliant color, and the downward way alluring by a spread of sweets. It is in a more enticing way the old story :

"Walk into my parlor said the spider to the fly,
I've the prettiest little parlor ever you did spy."

The other group consists of those that perform certain movements specially designed to secure their prey.

There is a third group, to it belong plants the leaves of which are provided with glands that secrete a sticky substance to capture insects and fluids to digest them. Some Canadian plants have sticky foliage, but the writer is not aware that it has been ascer-

tained that any of them can digest the insects that may chance to adhere to the leaves.

The first group is represented in Canada by five species of bladderworts, which illustrate the closed chamber contrivance and one species of pitcher plant which uses the pit-fall method. Of the bladderworts, four species live in ponds or pools in bogs, one roots in mud. The aquatic species have no roots, they float just below the surface of the water, throwing up only flower stalks with their yellow flowers into the air. See Fig. 1876, copied, as are all illustrations in this paper, from the *National History of Plants* by Anton Kerner, Professor of Botany in the University of Vienna.

The life story of these plants is as follows : In the autumn spherical buds are formed at the ends of the branches, the leaves and old parts die, become saturated with water, sink to the bottom, taking of necessity these buds with them, where they remain all winter. On the return of growing weather these buds increase in size, become separated from the old decaying branches, ascend to near the surface and soon develop into a plant similar to that shown in Fig. 1876 with leaves and bladders. In some



FIG. 1876.

of the species all of the branches are supplied with leaves, the bladders being distributed among them ; other species have the foliage and bladders on separate branches.

The bladders are constructed in such a manner that each is a trap specially designed to catch very small animals. Their form and general appearance is shown in Fig. 1877, considerably magnified. The opening into the bladder is at the base of the stiff tapering bristles, which are so placed around it as effectually to prevent any other than animals small enough to enter the orifice from even approaching. The entrance is formed with four rounded angles, nearly square in outline. The under side or threshold is strongly thickened, from which a solid cushion projects inward. To the upper side or lintel, is fastened a thin transparent valve which closes upon the cushion, completely shutting the aperture. The valve is so elastic that

it can be easily pushed up by the tiniest animal on the outside and so get within ; as soon as it has entered, the valve instantly springs back to its normal position, and the venturesome prisoner is a captive for life. Over the entrance might most truly be written,

" Who enters here leaves hope behind."

See Fig. 1878 showing in outline the cushion and valve magnified. Sooner or later the captives die and decay. Lining the interior surface of this prison house are cells specially

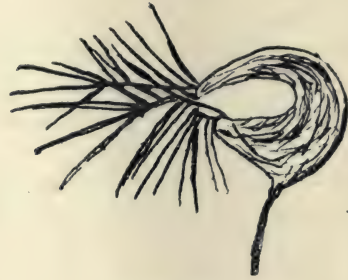


FIG. 1877.

designed to absorb the products of this decay, which thus become a source of nitrogen to the plant. We learn from Kerner that the number of animals thus captured is comparatively large, that most of them are small crustaceans, supplemented by larvæ of gnats and other small insects. That they must need be small, is evident from the fact that the bladders themselves do not exceed 5 millimeters in diameter, about one-fifth down to one-twelfth of an inch. What is it



Fig. 1878.

that induces these tiny members of the animal kingdom to press open the door, as it were, force an entrance into this death trap, is as yet an unsolved riddle. Mr. Kerner suggests that it may be to escape being drowned by larger predaceous inhabitants of the pool. Certainly none ever come back to warn their fellows.

We give for those who may desire to examine these curious plants a brief account of the few species indigenous to Canada: flowers yellow, one petaled, two lipped.

Utricularia vulgaris, the greater bladderwort; bears numerous bladders interspersed among the leaves, from 3 to 20 flowers, found from the Atlantic to the Pacific.

U. intermedia, Flatleaved bladderwort; the bladders with rare exceptions are borne on leafless branches; flowers 1 to 5, reported from Newfoundland, New Zealand, Quebec, in Ontario, from Ottawa west to London and northward at Lake Huron, Lake Superior and Lake Nipigon, also in Manitoba and the Rocky Mountains.

U. gibba, Humped bladderwort produces few very small bladders scattered among the leaves, and only one or two flowers; found at the eastern end of Partridge Lake, Addington County, Ontario (Macoun), and near Westminster, London, Ontario (Dearness).

U. clandestina, Hidden fruited bladderwort; this species, like our wild violets, has two kinds of flowers, one kind like those of the other species, in number 3 to 5; the others very numerous and borne among the bladders under water, strictly cleistogamous, that is, fertilized in the bud, reported from Kent and Albert Counties, N. B.

U. minor, Lesser bladderwort; the bladders of this species are very small, about one-twelfth of an inch in diameter and not numerous, sometimes not any; the flowers from 1 to 10, flower stalk from 2 to 6 inches high. In a marsh at Mount Stewart, Prince

Edward Island, (Macoun) Labrador to British Columbian (Britton).

U. cornuta, Horned bladderwort, grows in the mud at the margin of small lakes and ponds, flowers 1 to 6; very abundant along Gulf River, between Big and Little Bushkong Lakes; at Chicken Bay, Lake Huron, McIntyre's Bay, Lake Nipigon (Macoun); reported from Newfoundland, Nova Scotia, New Brunswick and Quebec. The writer has seen it in bloom on the borders of small lakes near Gravenhurst in the month of July, but could not find any bearing bladders.

Pitcher Plants. The pitfall contrivance is formed by the metamorphosis of the leaves of the pitcher plants into sacs. There is one member of this family common in Canada, from the Maritime Provinces to the Rocky Mountains, growing in mossy bogs and marshes, *Sarracenia purpurea*, Pitcher plant, Huntsman's Cup. See Fig. 1879, showing the rosette of leaves and flowers borne singly upon the upright stalk.

As will be seen by the engraving, the leaves, arranged in the form of a rosette



Fig. 1879.



Fig. 1880.



Fig. 1881.

upon the ground, instead of the usual flat leaf blade and narrow leaf stalk, have been changed, stalk and blade into lengthy sacs, resting upon their backs, inflated about the middle, somewhat contracted about the mouth, which is raised up from the ground and bordered with a collar or sort of hood. This hood is streaked with red veins, often of a vermillion brightness, and holds its concave surface in a position to catch the rain-drops and conduct them into the cavity below. Near the mouth the pitcher is provided on the inside with glands which exude a sweet fluid that is spread thinly over what may be termed the throat. Below this the interior is lined with long, smooth, sharp-pointed bristles. See Fig. 1880, a section through the wall of the sac, showing the long spinous bristles greatly magnified. The bright colors and sweets allure the insects, many slide down over the smooth slippery spines; after vainly endeavoring to climb the bristle-lined wall they sink exhausted into

the water below and perish. When a number are decaying the water becomes turbid, resembling manure water. It is not yet known whether the fluid is mere rain water or whether the gland-like cells at the bottom exude a secretion which modifies its character. Will not some reader of the Canadian Horticulturist settle this question? It is in this way that Pitcher plants obtain more or less of their required nitrogen. These comprise all of the Canadian plants embraced in the first group.

Turning now to the consideration of the second group, those plants that exhibit movements in capturing their prey, we find that the Canadian members are confined to two plant families, one also belonging to the Bladderwort family and four to the Sundew family. This one, which is placed by botanists in Bladderwort family, has no bladders, does not live in water, captures insects by the involution of its leaf margins. It may be briefly described as follows—*Pinguicula vulgaris*, Butterwort. The leaves are entire, arranged in a rosette at the base of the leafless flower stalk, flower violet-purple, one petaled, two lipped, upper lip two cleft, under three cleft, nearly straight nectar bearing spur varying from one-sixth to one-third of an inch in length. Its range is from Newfoundland and Quebec through Ontario to the Rocky Mountains. In Ontario at Red Bay, Lake Huron, along the coast of Lake Superior from Michipicotin to Red Rock, on St. Ignace Island and on the east coast of Lake Nipigon (Macoun).

Fig. 1881 represents a flowering plant. The upper surface of the leaves is covered with numerous glands which secrete a sticky fluid that is poured out profusely whenever an insect or other nitrogenous body is brought continuously in contact with them; to this, at such times only, is added another fluid similar to the gastric juice of animals. When small insects alight upon the leaf they are detained by the sticky sub-



Fig. 1882.

stance always presented ; struggling to extricate themselves only makes matters worse by exciting the glands to a more abundant discharge. If they alight near the edge where the glands are less numerous, this part of the leaf gradually rolls inward to cover its prey. If the creature be too large to permit of that, it is pushed into the middle where the glands are abundant. The only movement is that made by the leaf margin, it is not rapid, it is slow ; if it folds over the insect it will remain in that position until its prey has been digested and absorbed, which is usually completed in 24 hours, when it forthwith moves back to its normal position.

There is something almost startling when told that a member of the vegetable king-

dom is endowed with sensation, a seemingly voluntary power of motion, and digestion through the secretion of a digestive fluid like that of animals. What becomes of the vanishing line between the animal and vegetable kingdom ? Doubtless our *Pinguicula vulgaris* received its name of Butterwort from being greasy to the touch ; but far more than a century ago its leaves were used in dairy farming to produce the same changes in milk that are now brought about by the use of rennet, so that its association with dairy products is more than fanciful.

The movements made by the members of the Sundew Family are more striking, especially those of the leaves of Venus Flytrap, *Dioncæa Muscipula*, which is not found north of eastern North Carolina. Nevertheless, the process of capturing small animals by those members growing in Canada is very interesting. Upon the upper surface of the leaves of these plants are numerous delicate wine-red filaments, tipped with a tiny round knob, bearing a fluid droplet. These filaments are of unequal length, resembling a number of small pins thrust into a cushion to unequal depths, the shorter in the centre the longer at the margin. Each leaf is said to contain about 200. The ball-shaped knob is a gland that secretes the tiny droplet which is transparent and sticky, sufficiently cohesive to be easily drawn out into threads. This droplet glittering brightly in the sunlight much resembles a dewdrop, hence the name Sundew. When an insect or other organic nitrogenous body touches any of these glands they at once begin to discharge a true digesting fluid such as is secreted by the leaf-glands of the Butterwort, and having the same properties as the gastric juice of the animal stomach.

Doubtless, many insects are deceived by the glittering droplets, mistaking them for honey, become entangled among them by reason of their adhesiveness, and in endeavoring to escape cause the glands to give

out a more copious effusion and set the filaments in motion. The filaments to which the insects adheres begin to bend inward, much as we bend a finger into the palm of the hand. When this has bent down so that the prey is brought to the surface of the leaf, the filaments nearest to it will bend in the same manner, and when these touch the surface others adjoining follow, and this sort of movement by detachments is kept up until all the filaments are bent down.

Fig. 1883 shows a leaf with half of the filaments bent over the captive, and one where they are all inflexed towards the middle. These are both magnified, and illustrate the movement when the insect has been captured by one of the filaments on the margin of a leaf of the round leaved species, by which it is necessarily brought into the centre. It must often occur that the capture is made by a filament other than one on the margin, but, whatever the position, the incurving filaments never fail of their aim. If two are captured at the same time the filaments divide into two groups. Indeed all these movements vary according to the needs of the movement, so that the purpose to immerse the prey in an abundance of digesting fluid never fails of accomplishment. The filaments are also endowed with discrimination, for if grains of sand or other non-nitrogenous bodies come in contact with the glands, though secretion is increased, no pepsin is discharged and no bending takes place. As soon as the prey has been digested the filaments resume their former position, the time occupied in absorbing the nutrient portions varying with the size of the captive. It is surprising to find that they capture so many and so large insects, not midges only, but ants, flies, small butterflies, dragon flies, these larger being secured by the co-operation of two or more leaves. The remains of thirteen different insects have been found upon a single leaf.



Fig. 1883.

A brief mention of the several Canadian species of Sundew will close this paper.

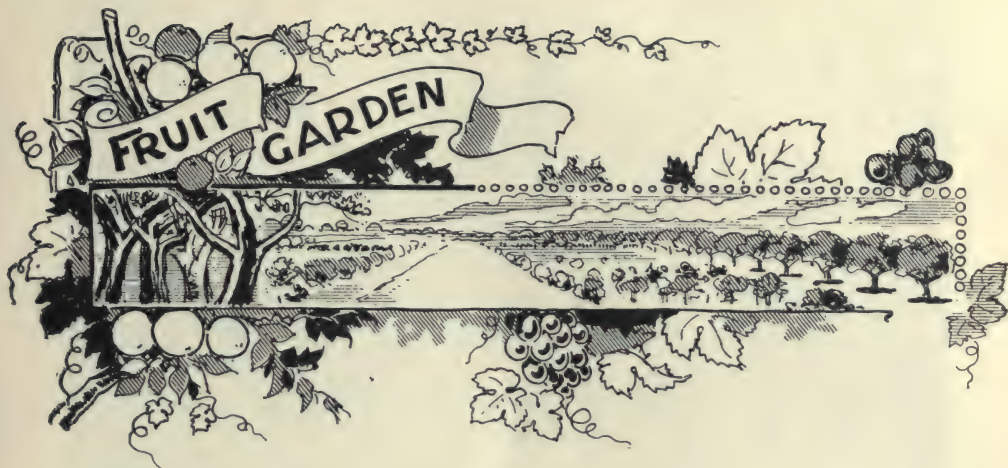
Drosera rotundifolia, Round-leaved Sundew, grows in bogs and marshes from the Atlantic to the Pacific. See Fig. 1882, natural size. *D. intermedia*, Spatulate Sundew, in bogs and margins of lakes throughout Quebec and northern Ontario to Manitoba. Both of these are abundant in mossy beds bordering Holland River west of Newmarket.

D. longifolia, Oblong-leaved Sundew, in boggy ground along the shores of Lake Huron, Bruce peninsula, Manitoba and British Columbia (Macoun).

D. linearis, Slender-leaved Sundew, in marshes of Lake Simcoe, Chicken Bay, McLeod's Harbor and Cockburn Island, Lake Huron to Manitoba and Rocky Mountains.

D. W. BEADLE.

Toronto, Ont.



FRUIT CULTURE.—VI.

THE CHERRY.

THIS fruit has been receiving deserved attention in southern Ontario during the last few years, although its full value as an orchard crop has by no means been fully recognized. Broadly speaking, there are three types,—the sweet cherries, including Bigarreau and Heart varieties; the sour, including Morellos and the Kentish varieties; and the Duke class, the varieties of which comes half-way between the sour and sweet types, having a growth corresponding more to that of the sweet cherry, but fruit of an acid or sub-acid character. In southern Ontario, and where the tender varieties of the Dominion plums succeed, the sweet cherry and the Dukes will be satisfactorily cultivated. Outside the peach limit, however, it would be advisable to have a northern exposure. Most varieties of the Morello type will thrive with proper care over the larger part of Ontario.

SOIL.—While many of the fruits already treated of will succeed in a variety of soils, providing proper drainage is given, the cherry is particular about its location. A

warm, sandy or gravelly soil, rich and well drained, is the ideal spot. If planted on heavy or wet lands it may do fairly well with extra care for a short time; but real success cannot be achieved and the tree will not live many years.

PLANTING AND PRUNING.—The sour cherries may be planted about eighteen feet apart, the Dukes twenty, and sweet cherries at least twenty-five. Even a sour variety, like the Early Richmond, would probably be better twenty feet apart. Fig 49 is from a photograph of an Early Richmond orchard ten years old, and sixteen feet apart, and it will be seen that the trees even now need room. The cherry, of all fruit trees, is the most difficult to transplant successfully. The general experience is that more losses occur than with the planting of any other kind of tree, and it will decidedly pay to buy one-year old trees. The method of pruning the first two years is much like that employed for the apple. The Duke cherries are very upright growers, and the young shoots should be pruned to an outside bud,



FIG. 49

M. BURRELL.

and the head somewhat opened up. The sour cherries, on the other hand, are inclined to be drooping and spreading in habit, and the tendency must be corrected as early as possible. See Fig. 50. The head once formed, little pruning of the cherry is required. In fact, the less the better, as a good deal of gum exudes from the pruned parts, and the wounds heal less easily than those of other trees. The sweet cherries may be headed slightly higher than the

Dukes or sours. Fig. 51 illustrates a crotch the evil of which will be remedied by removing the branch at A in Fig. 52.

CULTIVATION AND MANURING.—The general system of tillage and manuring advocated for other fruits will apply also in the case of the cherry. People who have been accustomed to grow the sour cherry in sod along their fences have little conception what this fruit will do when generously treated. The orchard in Fig. 49, comprising now about one hundred and forty bearing trees, commenced to fruit in the fourth year, and has not failed to produce a crop since. Since that time it has received one heavy coating of manure, a good crop of crimson clover plowed under, and two applications of unleached wood ashes at the rate of eighty bushels to the acre. No weeds have been allowed to grow. No plowing was done in the past spring, the disc harrow working the ground from the trees and a fine-toothed harrow doing the rest of the work, with the exception of a

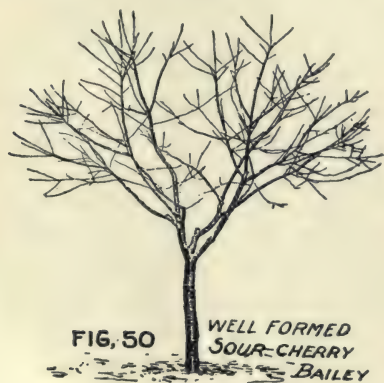


FIG. 50

WELL FORMED
SOUR-CHERRY
BAILEY



FIG 51
Windsor cherry, four years set.



FIG 52
The tree pruned. BAILEY

little hoeing round the trees. Three hundred and forty baskets of fine fruit were taken off the last season, and practically no rot or wormy cherries in the whole orchard. The only poor row was the one next to the fence, where cultivation could only be given on one side of the row.

VARIETIES, IN ORDER OF RIPENING.—For the colder sections of the Province, *Early Richmond*, *Montmorency*, *Ostheim*, *English Morello*. All of these are sour and of high value for preserving and cooking purposes. *Montmorency* is a firm cherry, of good size, and of a more upright growth than the *Richmond*. (See Fig. 53.)

For districts where the thermometer seldom goes lower than 15° below zero, the above varieties for sour; and, in addition, *May Duke*, *Black Tartarian* and *Windsor*. Extensive planting of the sweet varieties is not recommended till more is known about their hardiness. Professor Hutt, of the Ontario Agricultural College, is now testing a large number of these varieties. For southern Ontario, *Early Richmond*, *Montmorency*, *English Morello*, *May Duke*; Sweet varieties, *Governor Wood*, *Black Tartarian*, *Yellow*

Spanish, *Knight's Early Black*, *Napoleon Bigarreau* and *Windsor*.

DISEASES.—Mildew, black-knot and rot (*Monilia*). Mildew of the leaf, (especially affecting the younger trees of the sour class). For this, spray with Bordeaux mixture. Black-knot, affecting sour cherries chiefly, systematic cutting out and burning. Rot, principally affecting the sweet cherries; this is the great drawback to the culture of the sweet cherry. One spraying with Bordeaux mixture before the blossoms open, and two or three after they have fallen, will generally keep the crop fairly free from rot. In a wet season it is impossible to prevent it altogether. *May Duke*, *Yellow Spanish* and *Napoleon Bigarreau* are especially liable to rot.

INSECTS.—Curculio, black aphid, and sometimes the peach borer. The best remedy for the black aphid is tobacco water, one pound to three gallons, and one quarter pound of whale oil soap added, or one pound whale oil soap to seven gallons water, mix hot. Kerosene emulsion, if used, should be strong—one to seven or eight. The applications must be early and thorough.



THE QUINCE.

The history of the quince carries us back as far as the early days of Greece. An ancient, and always a highly-esteemed fruit. Judging from the prices of the last few years, the quince appears to have fallen from its high estate. The Greeks and Romans considered it to be possessed of special

health-giving properties. The modern quince grower would doubtless like to persuade the public of the truth of this, and would gladly see a little of the money that is spent on patent medicines devoted to the purchase of quinces. At all events, there will always be a fair demand for good samples of this fruit, and every farmer should have a tree or two for his own use. For jellies, and for preserving with other fruits, it has a high value, and can be easily and cheaply grown.

SOIL.—The quince can stand more neglect than most fruits, and usually gets all it can stand. It is a popular belief that a low, wet corner, unfitted for anything else, will make an appropriate home for a quince tree. Nothing could be farther from the mark. It should have a rich, deep, mellow soil, and well drained at that.

PLANTING, ETC.—Two-year old trees should be planted, and at a



FIG. 54
Neglected Quince-Tree.



FIG. 55
THOMAS
Well-Pruned Quince-Tree



FIG 56

New York quince trees.

BAILEY

distance of twelve feet apart. The tree should be shaped with a very low head, the pruning being merely the thinning out of the centre, the removal of all suckers and an occasional cutting back to keep the tree from getting a straggly appearance. Some people grow them in bush form. If this is done, only three or four main stems should be allowed to grow. The accompanying Figs. 54 and 55 will illustrate the matter. Where old trees have been neglected, they should be thoroughly pruned on the lines indicated, and have a good dressing of manure worked in around the roots in spring. When the trees are in full bearing, cultivation becomes difficult on account of the closeness of the trees and their spreading character. The quince orchard may then be seeded down, but pruning must not be neglected, and a top-dressing of manure should be given every second or third year.

VARIETIES.—*Champion*, *Meech's Prolific*

and *Orange* are good quinces of the large, round, orange type. The *Pear* quince, as its name indicates, is pear-shaped. It is a more solid fruit than the others, ripens later, and is somewhat smaller. If well manured and thinned it will give excellent results.

DISEASES.—Blight and "red rust" are the worst diseases affecting the quince. The latter is the same fungus that in the earlier stages is known as the "cedar-apple" of the red cedar. Spraying with Bordeaux mixture will assist in controlling it, but were practicable it would be advisable to cut down cedars near the quince orchard.

INSECTS.—The borer and quince curculio are sometimes injurious. The former is the round headed apple borer (*Saperda Candida*) and is referred to in the 1897 Institute Report, p. 180. The curculio can be trapped by the "jarring" method.

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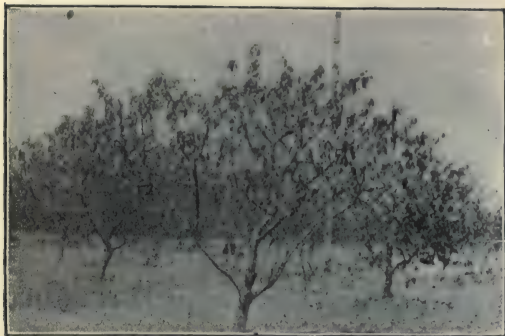


FIG. 1884.



FIG. 1885.

THE PREVENTION OF LEAF CURL.

CORNELL Bull., No. 180, gives results of experiments in trying to control this evil of the peach tree. These tests were made in 1899, and the varieties treated were Elberta, Crawford, Hill's Chili, Brigden, Mountain Rose, etc.

Murill, the experimenter, gives the following as his conclusions :

There is no good reason for giving up the Elberta or any other variety of peach sensitive to leaf-curl, as the disease can be controlled by spraying at trifling expense.

Of the three substances employed as fungicides in these experiments, the Bordeaux mixture is the most useful ; and, though several different strengths of this mixture have been found nearly equal in efficiency the past season, for the early spraying a strong solution is recommended. When Bordeaux of good strength is used early and a season of warm, dry weather follows, continued as late as the middle of May, a second spraying is not profitable ; but if the weather is cold and wet, it is well to spray again with Bordeaux after the petals fall, using only two pounds of copper sulphate (with excess of lime) to fifty gallons of water, for, notwithstanding some statements to the contrary, the foliage of the peach seems sensitive to stronger solutions.

The treatment, then for the prevention of peach-leaf curl based upon my own and other experiments is briefly as follows :

1. Spray with Bordeaux consisting of 6 lbs. of copper sulphate, 4 lbs. of good quick-lime, and 50 gals. of water about the first of April, when the buds are beginning to swell.
2. Spray again when the petals have

fallen with Bordeaux consisting of 2 lbs. of copper sulphate, 2 lbs. of good quick-lime, and 50 gals. of water. If the weather of April and early May is warm and dry, this second spraying may be omitted.

Lime or copper sulphate alone with water have been almost as effective as Bordeaux the past season when used for the first spraying and followed later by Bordeaux, but their effects are not so lasting ; particularly in rainy weather, and, whether the season is favorable or unfavorable, the second spraying with Bordeaux should not be omitted when lime or copper sulphate are used alone for the first.

At the Ohio Agricultural Experimental Station, investigations of plant diseases have been carried on since 1891, beginning with apple scab, and extending over various other fungi. Since 1895, experiments were tried with the object of checking the curl of the peach, and in 1897 a considerable portion of the foliage of the peach trees was saved, and in 1898 it was conclusively shown that Bordeaux mixture was most effective against leaf curl.

Our readers in Ontario who are peach growers will be especially interested in these two illustrations, because of the importance of the Elberta as a market peach, which has often shown itself so susceptible to leaf curl that the crop has been spoiled for the season. But if we can depend upon spraying to keep this fungus in check, we may continue planting this variety with confidence.

PRUNING ORCHARDS.

DURING several years the Illinois Experimental Station has been conducting experiments in pruning fruit trees. These investigations show us that the pruning of apple trees is too little practiced by fruit growers generally. It seems well, therefore, to say a few words on the subject at the present time.

Pruning is the removal of superfluous branches, thus allowing a free circulation of air in the tree tops ; and admitting light to the remaining inner branches of the tree. Its object is simply that of securing more and better fruit. When trees are left to themselves the branches crowd one another and do not give sufficient room and sunlight and air for the developing of fruit on the inner branches. Moreover, fruit which is developed on unpruned trees can not be readily protected from apple scab and codling moth, as well as other diseases and insects. The cost of spraying is much less in point of time and material saved on trees which are judiciously pruned. Cultivation, too, is carried on with greater ease and effectiveness in the pruned orchard. Harvesting of fruit also is greatly facilitated in those trees which are properly pruned.

The ideal pruning is that which commences in the nursery rows when the trees are a year old and continued each year until the trees have served their usefulness in the orchard where they have borne fruit for many years. It is therefore an operation which commences with the nurseryman, and it is his office to see that the trees are symmetrical and with limbs at the proper distance from the ground. The best, and in fact the common way with the majority of nurserymen is to remove, just after they have started, the buds which are found below the point where the head of the tree is

to be and other undesirable places. This is readily and quickly done by rubbing off these young shoots or buds with the hands. It may be necessary to repeat this operation during the first one or two seasons. The second season when the trees are transplanted remove all superfluous limbs close to the body of the tree with a sharp knife, cutting back the remaining three to six fully one-half the previous year's growth. This is the time when the orchardist should receive the tree, yet it is common practice to wait until the plant has attained its second or third year. In any case, the year the trees are finally set in the orchard they should be well headed in, cutting to a bud, which on upright varieties will be left on the inside. This bud is to form the new limb and take its place with its fellows in forming the main branches of the tree. If one desires higher headed trees than those which the nurseryman has to furnish he simply needs to take up a leader, starting the head at the desired point and removing the lower branches. Each year after the trees are planted they should be gone over carefully, and a limb removed here or there, the object being to prevent rubbing of branches and to allow the top to be free and open. The best time to do this, all things considered, is during the months of March and April. The orchardist has more leisure at this time, the limbs can be clearly seen against the sky and the tree does not suffer as it does when wounded during the cold months.

As stated above, the best pruning is that which is done with the hand by rubbing off the buds before the undesirable limbs have had an opportunity to develop to any great extent. If the operation is repeated each year there will never be any large limbs to remove ; at least a saw will rarely be re-

quired. Wherever possible the pruning knife or pruning shears should be used instead of the saw. Try to make as smooth a cut as possible. After the orchard has been gone over with respect to pruning, all wounds left thereby should receive a coat of white lead paint which has been mixed with linseed oil. There are many other materials used for this purpose, but our experiments here seem to show that white lead paint is the most desirable from the point of expense and efficiency.

ORCHARD FERTILITY.

The notion prevails in the minds of many apple growers that apple trees do not require as much plant food proportionately as do other crops. That this notion is wholly erroneous is shown by the result of carefully conducted experiments of Roberts published in Cornell Bulletin 103. These show that the growing of thirty-five apple trees per acre, which makes the distances between trees thirty-five feet, in twenty years production of foliage and fruit, averaging ten bushels per tree, requires plant food in the form of nitrogen, potash, and phosphoric acid in value amounting to \$207.45. This twenty years commences with the time the trees are thirteen years of age, continuing until they are thirty-three years old and it is assumed that during the five years from thirteen to eighteen they would average five bushels per tree per year, ten bushels per tree per year during the next five and fifteen bushels per tree per year during the remaining ten years. This, however, does not take into account the enormous amount of fertility which was required to develop the great amount of wood represented by thirty-five trees per acre. Compare this with the amount of fertility removed by a wheat crop. In twenty years cropping with an average yield of fifteen bushels per acre and seven pounds of straw to three pounds of grain, the total value is \$128.23 removed in the

shape of nitrogen, potash, and phosphoric acid, or \$79.22 less than that required to supply the waste in fruit and leaves of the apple orchard.

No intelligent farmer would expect to grow wheat on the same area for twenty years without the best of cultivation and fertilizing; yet everywhere we find apple growers asking their soil to support a much greater drain than wheat would cause. It is known that some fruit growers are asking their land to support apple trees for forty years in addition to annual secondary crops, and this, too, without giving manures or even cultivation.

The question of the fertility of orchard soil is one which has hitherto received little or no attention from Illinois fruit growers. This is largely because of the fact that throughout a large portion of the state the soil is exceedingly rich in plant food. In fact, a considerable area, especially the central portion, is so rich in the elements of plant food as often to cause an excessive growth of the woody portion of the tree, thereby diminishing its fruit production. On this account few growers of orchard fruits in what is termed the corn belt of the state would think for a moment of applying fertilizers to their orchard soil. This, however, is no reason why the fruit growers in the southern third of the state or in parts of northern Illinois should think that their soil can be uniformly productive without the application of some of the elements of fertility either in the form of applied manures or by the growing of green crops. After a careful study of the question we are thoroughly convinced that there are hundreds of apple orchards in this state which are literally starved to death. In other words, these orchards are on soils whose fertility has either been exhausted or made unavailable by injudicious management.

At this point it is necessary to define what is meant by the word fertility. In its broad-

est sense fertility is a word used to designate the productive power of the soil. This productive power may be due in large measure to the physical condition of the soil rather than to a liberal supply of the chemical constituents necessary for great productivity. Or on the other hand a soil may be wholly unproductive yet contain excessive quantities of plant food, because of the poor physical condition of the soil. All this means that the plant food within the soil counts for nothing if the plant can not get it. We have already emphasized the importance of thorough tillage for making available what plant food there is within the soil. Yet as above stated, even with the best management of the soil in this particular, it may still lose so much plant food that it is necessary to supply commercial fertilizers or other manures.

Of the thirteen elements which the soil may contain and which may be used by plants, only three are ever lost in such quantities as to make their restoration necessary. These are nitrogen, potassium, and phosphorus. Of these three the one most readily lost is nitrogen. This element, which comprises four-fifths of the air, combined with other elements becomes available to the plant. It is the element which is responsible for the rapid development and early formation of our apple trees and other plants. Phosphorus, in the form of phosphoric acid, is necessary in order to give strength and firmness to plants and, next to nitrogen, is, all things considered, the most important element of plant food. While needed only in relatively small quantities by plants it is lacking in many soils. Potash comes next to phosphorus in importance and is the most important constituent for fruiting plants, at least those that are expending their energies in that direction.

Nitrogen.—The yellowing of the foliage and stunted appearance of the tree is a pretty sure indication that the soil is deficient in

nitrogen. An insufficient supply of nitrogen tends to dwarf plants. Good stable manure, if well taken care of, that is, not allowed to leach by rains, will supply to the soil liberal quantities of plant food.

Other sources of nitrogen for plant compounds.—Sodium nitrate is the most important commercial fertilizer containing nitrogen. A hundred and twenty-five pounds of this salt would probably be the minimum amount per acre. But its use is advisable only after other means have failed. This might also be said of barn-yard manure. By all means the cheapest way of securing nitrogen is by thorough tillage, which increases or hastens nitrification, and by green manuring. If these two latter methods are practiced there will rarely ever be occasion to resort to commercial fertilizers.

By green manuring is meant the growing of some crop in the orchard, especially those leguminous or nitrogen forming plants, which, when turned under and decomposed, add nitrogen and other food material to the soil. The greatest good, however, derived from this operation is the addition to the soil of large quantities of humus or decaying vegetable matter which greatly improves the physical condition of the soil, thereby increasing its power to hold plant food and moisture. What crops are most advisable for this purpose depends almost entirely upon soil and climatic conditions. They are usually confined to some of the clovers, peas, beans, vetches, or lupines. Wherever clovers or vetches succeed well they should be used.

These leguminous plants are enabled to take up the free nitrogen of the air by virtue of small nodules or tubercles formed on their roots as a result of the activity of microscopic forms of life known as bacteria. It is now clearly known that if these organisms are not present in the soil the leguminous plants are unable to use the nitrogen of

the air. As a result of this, soil inoculation is often resorted to. This simply consists of taking soil where these plants are found to grow luxuriantly, and have an abundance of the tubercles above referred to, and sowing the same on a new area, a few handfuls of soil often sufficing for an acre of ground. The exact physiological process gone through with by plants in securing this free nitrogen is not definitely known.

Phosphorus.—Phosphoric acid is applied to the soil as a direct fertilizer in the form of superphosphates, bone compounds, etc. Dissolved South Carolina rock is a common commercial form of this manure. Usually, however, if soils are well cared for this element will not be lacking.

Potash.—Potash may be secured in the form of muriate of potash, which is probably the most reliable. Kainit or German potash salts and wood ashes are other forms of this commercial fertilizer, for the bearing orchard at least. Five hundred to seven hundred pounds of muriate of potash, or

forty or fifty bushels of wood ashes, is a dressing per acre for orchards.

The following formula is suggested :

Ground bone.	100 pounds.
Acid phosphate.....	100 pounds.
Muriate of potash	100 pounds.
Nitrate of soda.....	125 pounds.

This amount per acre applied in the spring-time and either plowed under or disced into the soil will be found sufficient for those orchards bearing annual crops of fruit. The above formula, however, should be supplemented by special fertilizers or otherwise varied to suit any particular orchard whose soil conditions are peculiar to itself.

It should be understood that this discussion does not encourage the use of commercial fertilizers. There are instances, however, where these must be resorted to. Orchardists should largely confine themselves to cultivation and green manuring for supplying the necessary plant foods.—From Bulletin 55, Illinois Agric'l Exp'l S.

RULES FOR JUDGING FRUITS, WITH A SCALE OF POINTS.

GENERAL RULES.

1st. In all cases the judges are to be governed by the letter and spirit of the schedule under which exhibitors have made their entries, the general appearance of the fruit, care in its selection, and taste displayed in arrangement or grouping, each entry being distinctly separate from the rest. These are all elements of the highest importance, and should receive appropriate consideration by the committee.

2nd. In every group, whether the single plates, threes, fives, tens or larger collections of fruit, there should never be more than one plate of any variety in any one group. List of names of varieties contributed shall accompany each group, and must

be attached to the entry card, and have a corresponding number and designation, with or without exhibitor's name, according to rule.

3rd. The same plates of fruit cannot compete for different prizes, though the several entries for the best ten, five or other numbers, and the best plate, may embrace the same varieties, but not the same plates of specimens; in each case they must be duplicates, and in sweepstakes they will count a single variety.

4th. When the schedule prescribes the number of each kind, usually three or five, to be placed on exhibition, not less than the exact number must be presented.

5th. In general collections of fruits by

individuals, counties, or otherwise, when the several species of fruits are specified in the schedule, they must all be presented, or the collections may be passed by the committee.

6th. In all cases, but more especially in the display, or greatest and best collections, number of varieties is the *prima facie* test of superiority, other things being equal; but quality, relative value, their perfect condition and tasteful appearance, will be considered, and should rank thus, respectively: 1. Number. 2. Quality or Value. 3. Condition, approaching perfection. 4. Taste in the Display.

7th. Unless there are special rules to the contrary the general rules that govern the exhibition of fruit shall apply to the exhibition of flowers. For collections, viz.: Roses, palms, etc., not more than three of any one variety will be allowed in any one collection. In judging collections two plants of different varieties shall rank equal to three of one variety. To illustrate. On a scale of ten—

No. 1 may have 100 plates, the largest collection.....	10
Quality, some inferior varieties.....	5
Condition of Fruit, rather poor.....	5
Taste in Display.....	5
Total	25
No. 2 may have ninety plates.....	8
Quality, superior in most.....	8
Condition of Fruit, perfect.....	10
Taste in Arrangement, good.....	8
Total	34

No. 2 would, in this case, take the premium.

In the case of single plates of the several kinds named, or in a competition for the best plate or basket of any kind of fruit, we may consider condition, form, size, color and texture, with flavor. On the same scale we have two entries to decide, thus:

No. 1.

Condition, perfect.....	10
Form, abnormal.....	8
Size, overgrown.....	8
Color, Perfect.....	10
Texture and Flavor, superior.....	10
Total	46

No. 2.

Condition, stem lost.....	8
Form, perfect.....	10
Size, uneven.....	6
Color, too pale.....	6
Texture and Flavor, insipid.....	5
Total	35

This scale might be used in deciding between any number of single plates of designated varieties competing with one another for the best plate of any kind, or for the basket premium with assortment of single variety, according to the words of the schedule.

SPECIAL RULES.

The judges shall have an ideal standard of perfection in all cases, made up of the following particulars:

1st. The condition and general appearance of the fruit, which must be in its natural state, not rubbed or polished, specked, bruised, wormy, nor eroded; with all its parts, stem, and calyx-segments well preserved, not wilted or shriveled, clean.

2nd. The size, in apples and pears particularly, should be average, neither overgrown nor small. The specimens should be even in size.

3rd. The form should be regular, or normal to the variety, and the lot even.

4th. The color and markings, or the surface, to be in character, not blotched nor scabby.

5th. When comparing different varieties, and even the same kind grown on different

soils, the texture and flavor are important elements in coming to a decision. 5 points.

In the class Peaches, plums, etc., the important elements are size, form, color, flavor and condition. 5 points.

In Grapes we must consider and compare the form and size of the bunches, the size of the berries, their, color, ripeness, and flavor and condition. 3 points.

In Currants we shall have to examine the perfection and size of the bunches, and of the berries, their flavor and condition. 3 points.

In Gooseberries we shall look at the size, color, flavor and condition. 4 points.

In judging Cherries we have as our guide the size and form, color, flavor and condition. 4 points.

In judging Strawberries we shall compare the size and form, color, flavor, firmness and condition. 5 points.

They shall be shown with stem and calyx.

Red Raspberries may be shown with or without the calyx. In this fruit we shall have to judge of the size, color, flavor and condition. 4 points.


Blackcap Raspberries must have size, color, flavor and condition. 4 points.

Blackberries must be tested according as they present size, color and form, flavor and texture, and condition. 4 points.

In all cases it is well to have a convenient scale of comparison, for which the number ten is found to be easily managed. The highest figure denotes perfection for the variety, and five is mediocre; below that is condemnatory. The total of the marks should exceed fifty per cent. of the possible number, or the entry must be passed as unworthy of reward.

Seedlings having once been presented and failing recognition under the rules of the Society, should not again be presented.—Report Nebraska State Horticultural Society.

THE WESTERN NEW YORK FRUIT GROWERS.

HE following questions and answers are from the report of the meeting of this body, which was held last January:

Which are the most valuable Japan plums from a commercial standpoint?

Mr. N. C. Smith—The best plums we have are the Burbank and Wickson for commercial purposes. Our experience has not been very broad with the Wickson—only three years. We find it produces an unusually good crop, provided it is thinned. We thin out to at least three-fourths. We have not determined whether it is a stand-by or not. The Burbank has proved very well, and we consider it one of the best. It is like growing Keiffer pears. We want to grow less in quantity and more in quality and get more for it. The Wickson is not so large and not so showy as the Burbank. A great many

who are growing the Wickson are not satisfied. I understand Mr. Willard is one.

Mr. Willard—I should say from my own experience that the Red June and Burbank are my most valuable varieties. The Red June, in consequence of its clear, cherry-red color, and of it ripening so early, (July 17th we had them this year), good size and fine appearance, sells extremely well. But, as Mr. Smith says, which is true of almost all, they need thinning. My experience with the Wickson has not been so flattering as Mr. Smith's, but the past year's was a little more in its favor. I know of no more productive variety, or one that pays so well as the Burbank. This year, where they were thin upon the tree, they grew so large that the canning factory didn't want them. Like the cherries I told you about, you could take several bites out of them. It is a very fine

canning plum, and sells well wherever I have put it, and it is the greatest producer in the way of Japan plum.

Prof. Van Deman—Do canners like Japan plums?

Yes, sir. I know of no plum equal to Burbank when canned.

Mr. Wood—Is the Burbank plum subject to the yellows?

Mr. Willard—We have never seen anything of it, and we have got probably 1500 trees of Burbank. We have them on both peach roots and plum. I would as soon have them on one as the other. Japan plums are not more exempt from curculio than other plums.

Prof. Van Deman—I think Japan plums will take yellows same as the peach, though not so badly.

Mr. Pillow—I expect the nurserymen to find fault with me, but speaking from the standpoint of the commercial fruit grower, in nine cases out of ten we don't want the Japan plum, because there are so many others better, like the Damson, German and French prune, and a long list of them, any of which are better than the Japan plum. They are tender and liable to be winter killed. You have got to thin them. We don't want them.

Mr. J. B. Collamer—I want the Burbank plum. I have a few of them and they have done well. From an acre and a quarter last year I picked and sold 223 bushels at a dollar a bushel. They are profitable enough for me.

Mr. Bogue—How is the Hudson River Purple doing in western New York?

Mr. Willard—It is subject to the black knot. We are grafting ours over.

What encouragement is there for growing currants?

Mr. Geo. T. Powell—I think the currant one of the most valuable small fruits that can be cultivated at the present time. There is only just one drawback to its cultivation.

Of late years it has been attacked by a number of insects. The currant worm I consider the least of the difficulties of currant culture, because that can be easily controlled. But there is an insect that has recently appeared, the tripeta. In some sections the fruit is absolutely worthless from the attacks of this insect. The stock-borer is another, but it can be controlled. There is a demand for currants since the legislation is looking towards the preservation of our pure foods from adulteration. The jellies that have so successfully imitated it are likely to be driven out. There have been years when the crop has not paid the cost of picking and shipping, but with the increased demand, except for the insect attacks recently coming, it stands to-day one of the most profitable for cultivation.

Mr. Willard—I grow a good many currants and concur with Mr. Powell in all that he said in regard to the profitableness of the fruit. I am sorry Mr. Barns is not in the room because he is one of the large currant growers, and I think he has found the business very satisfactory. My own impression is that a great deal lies in the growing of varieties especially productive and valuable on account of their market qualities. I doubt if some of the old varieties can be grown with a great deal of profit. I have been growing a variety known as the President Wilder, which I believe in every respect the most valuable we have ever grown. Its productiveness is double that of Fay's Prolific. Children picking by the quart at a cent a quart will double their wages on the President Wilder. Mr. Barns sold his crop in Boston at ten and twelve cents, while ordinary varieties brought five and six. The proof of the pudding is the chewing of the string.

A Member—What about the White Imperial?

Mr. Willard—We are speaking of commercial fruit. In point of quality I under-

take to say there is no currant can equal White Imperial as a table fruit.

Mr. Powell—I can indorse that statement, but I want to take exception to Mr. Willard's remark about the Fay. I think it varies in different localities and different soils. With me it is one of the finest and most productive on my place, and I have the President Wilder by the side of it. I have on some special test bushes had sixteen quarts of Fay Prolific on a single bush, and I would like to ask Mr. Willard if he can beat that?

Mr. Willard—No; I take in my horns.

Prof. S. A. Beach being called for, said—I am not prepared to speak on the question of currants from a commercial standpoint. I believe the White Imperial very excellent. The President Wilder is late; doesn't have to be marketed in a hurry. It is not quite as productive as the Cherry and the Fay, but a good grower. We have only a limited quantity on the Experiment Station grounds, and would not like to estimate it in a commercial way.

Mr. W. D. Barns being called for said—I hardly feel competent to answer the question, though we have grown currants largely along the Hudson river for twenty years. Fay's has been the standard for a number of years. It is weak in wood and falls early, and unless kept freely pruned they are apt to lie on the ground and become dirty. It is not a long-lived bush. The Cherry currant does not branch enough. The Versailles is smaller, and on the whole we consider it better for market. May's Victoria has been so far very profitable; not as large as either of the others, but later in the season. The bushes are hardier and it is a good grower. Of the old Victoria we have picked as high as eight quarts from a single bush in a favorable location. In regard to the Wilder and Prince Albert would say that the latter is the latest one to color of any; is different in habit and foliage, vigorous and productive, light color, but has been a good market

variety. The President Wilder we were among the first to set out, and from the first hundred plants we have received better returns than from any other. It is a strong grower; colors almost as early as Fay, will hold on longer, and is fit for market longer than any other variety. The North Star, Pomona and Red Cross we have not tested. The Wilder has averaged from one to two cents a quart more than the Fay or any other currant. We are now pruning our plantations for another year. Although the crop last year was heavy and prices were better than for three or four years, the promise now is as good as last year.

The Windsor Cherry: What of its value as an orchard sort?

President Barry—I will call upon my old friend Mr. Willard to open the discussion.

Mr. Willard—I am very glad for one that this question has been brought up in the form that it has. It may not be known to you all that to Ellwanger & Barry should be given the credit of having introduced this most valuable sweet cherry that has ever been given to the orchardist. I want to say to you that as a market fruit (we are talking of these things upon commercial lines), as a sweet cherry, there has never been one introduced that equals the Windsor. I believe I was one of the first to market this fruit, and wish to say I have a little row of them in front of my orchard that has been bearing three or four years; and assessed as high as that property is, which is far too high, that row of cherry trees has produced sufficient to pay the entire tax on that property—county, state, school, everything.

A member—How many trees?

Mr. Willard—Probably fifty. I said to my wife they were put out there for a purpose. The man who doesn't do things for a purpose cannot tell "where he is at." The purpose of my planting them was to pay the taxes, and they have done so. The

market demands a dark-colored cherry ; its value is higher than any sweet white cherry. The Windsor ripens at the time people want cherries. It is large in size, hard in flesh. Take a large one and you can take three or four bites out of it before you digest it. In 1898 the net price received per pound was ten cents, and in 1899 twelve cents a pound. I undertake to say that there is no cherry, as a market cherry, at the present time, that equals the Windsor.

Mr. Geo. T. Powell—Mr. Willard has left out one of the most valuable features of this of this fruit. He speaks of the value of the fruit, all of which I indorse, but he has not mentioned the exceedingly valuable quality of the tree. It is one possessing unusual resistance to disease. It is a very strong tree, constitutionally. Some of our cherries, the Black Tartarian or Black Eagle, are difficult to raise ; it is impossible to get an orchard to stand. They will grow two or three years and then are attacked by disease, and by five or six years you have a badly broken orchard. The Windsor cherry will stand side by side with the Black Tartarian, and when that goes out the Windsor shows no evidence of disease. Therefore, I prize in the Windsor cherry its ability to resist disease.

A member—What time does it ripen ?

Mr. Powell—In eastern New York it begins to ripen about the sixth to the tenth of July ; perhaps a little later in western New York.

Is there any other new cherry of promise, commercially ?

Pres. Barry—The Bing is a new one. Has any one tried it ?

Mr. Willard—Yes, sir ; I have tried it. The cions were sent to me from Oregon. I

have had it for three years, and it is one of the most beautiful and excellent cherries in every respect. It resembles the Windsor, but is a little larger. Some of them had a circumference of three to three and one-half inches, by actual measurement. I was so interested in fruiting the cherry that I referred to some works I had from the state of Oregon, and found it noted as one of the most promising new cherries they had seen, and I think it will bear out everything said about it there. I think a man who has that and the Windsor ought to be happy.

Prof. Van Deman—What is the best sour cherry ?

Mr. Willard—I think the Montmorency Ordinaire the best and most profitable sour cherry we have at the present time. The English Morello is also good.

Are there any new peaches of special value for the orchardist ?

FITZGERALD.

Mr. Anderson—I have a few trees ; got the buds in Canada. Last year we picked the first fruit, which proved to be insignificant. This year the same trees fruited finely.

Q. How does its size compare with the Early Crawford ?

A. It is not quite as long, but is a good, fine-sized peach.

Q. What is its season for ripening ?


A. I think a little later than the Crawford.

Mr. Willard—I saw it on Mr. Morrill's place, in Michigan, and it was very satisfactory. I have it growing, but have not yet fruited it. In hardness of bud it is excellent.

Mr. C. K. Scoon—As to quality, I would say that it is more than good, it is superb, and equal to Late Crawford.

(To be continued.)

HARDY CHERRIES.

T the recent meeting of the American Association of Nurserymen at Chicago, on the 13th and 14th of June, an interesting discussion took place on the most productive and hardiest of the Kentish and Morello cherries, from which we give the following extract :

Mr. N. H. Albaugh : In my opinion there are only three really A No. 1 sort of cherries that have been tested in all this western country and that will stand the cold and bear a crop even though the thermometer goes to 25 or 30 below zero, and those are the ordinary Early Richmond, the Dyehouse and the Montmorency. There is the advantage, too, that these three cherries come in succession, the Dyehouse coming first, then the Early Richmond, and then a week or so later the Montmorency, and the Montmorency is a cherry worthy indeed of planting.

Mr. Silas Wilson : A great many people are being misled, mixing up the Large Montmorency with the Montmorency Ordinaire and the Dyehouse. The Large Montmorency with me is an upright grower, rather stocky limb, very different from the Montmorency Ordinaire, which forms a head very similar to that of the Early Richmond, the fruit being much larger, but it does not come into bearing quite as early as the Richmond does. I can tell a Montmorency by its habit of growth, either in the nursery or in the orchard ; it has a larger and longer leaf and more pointed than the Montmorency Ordinaire. In regard to the ripening of the Dyehouse, I have fruited them for a number of years, as well as the Early Richmond, and it is safe to say that they ripened as much as four days earlier than the Early Richmond.

Being asked whether he considered the Dyehouse worth anything, Mr. Wilson said he did not consider it as valuable as the Early Richmond and the English Morello, and on the whole was not inclined to regard it as a great acquisition.

President Peters stated that in his section of the state the English Morello was considered of very little value, it being too slow about coming into bearing, and more likely to suffer from severe winters and curculio than most any other variety of cherry.

Mr. Augustine, of Illinois, stated that his objection to the English Morello was that during a warm, wet season the fruit was apt to become wormy before it ripened. The Large Montmorency, in his opinion, is the most valuable of the sour cherries in the west ; it is a much meatier cherry and the tree is a more vigorous grower than that of the Early Richmond and the cherry will bring one-third more in almost any market than the Early Richmond.

Mr. A. L. Brooke, of Kansas, said that in his state the sour cherry business is a very important business, and the Early Richmond has never been known to fail there. The Dyehouse is not considered to be of much account, as the tree is not hardy. The English Morello in Kansas bears itself almost to death, but it is not a hardy tree, the winters hurt it ; on the bottoms, especially, it will kill out in a very few winters.

Mr. Irving Rouse, of New York, said that the Montmorency cherry is the cherry for the canning factory and it will sell for more money than the Richmond or the Morello.



TIMELY TOPICS FOR THE AMATEUR—VI.

THE flower garden and lawn, especially the latter, usually presents a burnt up, rusty looking appearance during the month of August that is very discouraging to those who take a pride in having their gardens and lawns looking fresh and bright throughout the entire summer. Constant and copious waterings may keep the grass looking comparatively fresh and green, and relieve somewhat the general dried up appearance prevailing around; but the deficiency in color of foliage, and lack of flower on tree and shrub, is very noticeable on most lawns, at this the ripening season of the year.

The last sprays of bloom of the late flowering Spireas, such as *Spirea Douglasii*, *S. aurifolia*, *S. Bumalda*, and a few other varieties that are so useful in helping to brighten up the lawn during July, are now rusty and dingy looking. Even the useful purple leaved plum (*Prunus Pissardii*), and the purple leaved *Berberis* cannot retain the deep rich coloring of their foliage, if fully exposed to the burning rays of the sun. Many other of our colored and variegated leaved shrubs, also show the effect of the continuous hot sun, and are unable to retain the beautiful color and markings of their foliage, that make them so attractive during spring, and early summer. When planting any of

these variegated or colored foliage shrubs, give them a place, if possible, where they are partially shaded from the mid-day sun,



FIG. 1886. SPIREA DOUGLASII.

as very few of them give the best results possible when fully exposed to the sun during the entire day.

The shrubby Hibiscus or Altheas are, without doubt, the most valuable flowering shrubs for lawn decoration during August, as they retain the rich, glossy emerald green of their foliage, and produce in profusion their large showy flowers during the hottest weather in August. Nothing but a severe and long continued season of drought seems to have any ill effect on these sun-proof hybrids and descendants of the Syrian Hibis-



FIG. 1887. *HIBISCUS INCANUS*.

cus. These useful and beautiful shrubs will continue in flower well into September if given an occasional watering during very dry weather. Unfortunately, the different varieties of this Hibiscus, so far introduced, are not as proof against severe frosts, as they are sun-resisting in their character; as even in this locality they are sometimes partially killed back in winter, but soon recover, and make new growth very rapidly. As they flower almost entirely on the young growth made earlier in the season, this par-

tial frost killing does not materially injure them. Possibly, varieties may yet be introduced that will be sufficiently hardy to resist the severity of the weather in winter as successfully as the beautiful single and double flowering varieties we now have are in resisting the hot sun in summer.

The herbaceous species of the Hibiscus are of Californian origin, and are of special value, as they also produce their large funnel shaped flowers during the month of August. The variety *Hibiscus Californicus*, and *H. incanus*, the latter producing an almost pure white flower, are probably the best of the few varieties offered in catalogues at the present time.

Some of the dwarf growing Thuyas or Arbor Vitae are suitable for planting on small lawns; I do not consider them sufficiently bright and attractive for summer decoration, but they have a much better effect in winter when the ground is covered with snow, and the deciduous trees and shrubs are devoid of foliage. The beautiful dwarf golden tipped *Cyperus* (*Retinospora*'s) from Japan, that are seen in such perfection on lawns in the south of England, are, unfortunately, not hardy in this section. None of the *Abies* or *Pine* family are really suited for planting on small lawns, as the annual and disfiguring clipping process they have to undergo to keep them sufficiently under control, entirely spoils the beautiful symmetrical appearance that most of these trees present, when planted out singly, and left to grow unmolested.

The *Aristolochia siphon* or Dutchman's pipe plant is a hardy useful climber for covering arbors, fences, rustic arches, etc., in summer, as its large glossy green foliage retains its beauty all through the summer. A strong point also in its favor is, that no insect injures to any extent its dense, closely overlapping foliage. In localities farther north, where this climber is of questionable hardiness it could be trained on wires dur-

ing the summer, the wires and vines could then be removed both together, laid down and covered up during the winter with leaves or straw. This method is also useful for shading windows, etc., in summer, as no time is lost waiting for the plants to make growth.

The *Ampelopsis quinquefolia*, or common Virginian creeper, is another useful hardy trailing plant that is often overlooked for something far less pretty and effective. The small white insect, the thrip, that attacks the outdoor roses earlier in the season, often attacks the Virginia creeper and other plants during the hot weather. A syringing once or twice a week with strong tobacco water, or a weak solution of Paris green water, will keep down these numerous and voracious little pests. The exotic climber, *Cobea scandens*, can also be used very effectively in various ways around and about the lawn during summer. Seeds or cuttings of this plant must be started in heat in April, or early in May, and kept safe from frost until June, when they can be planted out in rich, light soil and kept well watered. This plant stands the sun well, and has a decidedly tropical appearance, especially when covered with its large purple cup-shaped flowers.

There are many other plants that are sun resisting in their nature, many of them being natives of countries where tropical or sub-tropical climates prevail. Those persons having the advantage of a greenhouse to winter their plants in, have no difficulty with these natives of warmer climates; many of them can, however, be wintered successfully in the dwelling house, or even in a warm cellar.

The numerous family of Agaves, most of which are natives of the southern part of North America, chiefly Mexico, are very useful for outdoor decoration in summer. A few of these plants stood out in large pots or tubs, give a lawn a decidedly bright and

sub-tropical appearance. The two varieties mostly seen on lawns are the *Agave Americanus* that has plain, pale green leaves, and the variegated variety of the same species. Most of the Agaves are of very slow growth, but do not, as many suppose, take a century to reach maturity and produce their immense spikes, as many specimens of these so-called century plants have been known to flower many years before their age had reached the century mark. Some varieties of the Agaves flower annually for years in succession, but most of them, like the two varieties mentioned, produce their blossom and then die. Agaves like a light, fairly rich sandy loam to grow in, with plenty of drainage at the bottom of the tub or pot. Keep the roots moist, but not saturated with water in summer; in winter they require very little if any water. Our watering is often responsible for many failures with Agaves and similar plants of a succulent nature. No amount of sun has any bad effect on the heavy massive foliage of these natives of the south, when once they have become hardened, after having been kept perhaps in close, dark quarters during the winter.

Many varieties of the *Yucca* and *Aloe* family are easy to grow, and make very desirable plants for outdoor use in summer. They require similar treatment to the Agaves.

Cannas can also be used very effectively in different ways on the lawn in summer, their beautiful foliage, ranging in color from pale green in some varieties to dark purple in others, and their curiously marked orchid like spikes of flowers, entitle them to a prominent position amongst our sun-resisting, summer decorative plants. On small lawns where beds or mixed borders of foliage plants cannot be used, groups of *cannas* grown in pots or tubs, placed in suitable positions on the lawn, have a particularly pleasing effect. The roots of the *cannas*

should be started in April in small pots in the hot bed, or even in the dwelling house. In June, after all danger of frost is over, they can be transferred to the large pots or tubs and placed on the lawn. Cannas like rich soil and plenty of water in summer, for this reason the pots or tubs can be sunk to the rim in the soil; they will require less water treated in this way. In autumn, after the first frost, the roots can be packed in



FIG. 1888. MADAME CROZY.

earth in boxes and stood away in a dry, warm place until the following spring. The holes where the pots or tubs have been plunged during the summer can be filled up with earth, and spring flowering bulbs, or early spring flowering plants, such as pansies, myosotis (forget-me-not), or the hardy white arabis can be planted to brighten of the lawn in spring and early summer before the cannas can be stood outside safely.

Many other plants, such as the Ricinus, Caladium Esculentum, large plants of Geraniums, or some of the strong growing varieties of the annual Amaranthus can also be used in the same way as recommended for Cannas, but few of them will be found as effective or as easy to grow as are the Cannas.

Masses and beds of foliage and other plants are bright and pleasing features on lawns, but are not always obtainable, and are besides very expensive.

Groups and single specimens of Palms, Cordylines, Oleanders, Agapanthus (African Lily), and Japanese Lilies, etc., look very pretty on lawns in summer, but few of them, except perhaps the Oleander, can stand the burning rays of the sun during July and August, requiring partial shade at mid-day to be successful in growing them.

There are numerous other methods of utilizing plants for brightening up the lawn and surroundings, such as the use of rustic stands, window boxes, etc. To be successful with these the adaptability of the plants used for the different positions they are to occupy must be considered, so as to prevent failure and disappointment. Care in the selection of plants suitable for sunny or shaded positions is quite as necessary as it is to provide good rich soil for the plants to grow in.

THE GREENHOUSE.—There is very little routine work in the greenhouse, differing materially from that of July. Watering and syringing will have to be closely attended to, both with plants in the greenhouse and those outside in their summer quarters. Calla Lilies should be re-potted if they require it. Freesia bulbs may also be potted; five or six bulbs can be put into a 4-inch pot. Stand the pots outside for five or six weeks in a shady place, give only sufficient water to keep the soil moist; when growth commences more water can be given them. Easter Lily bulbs can be

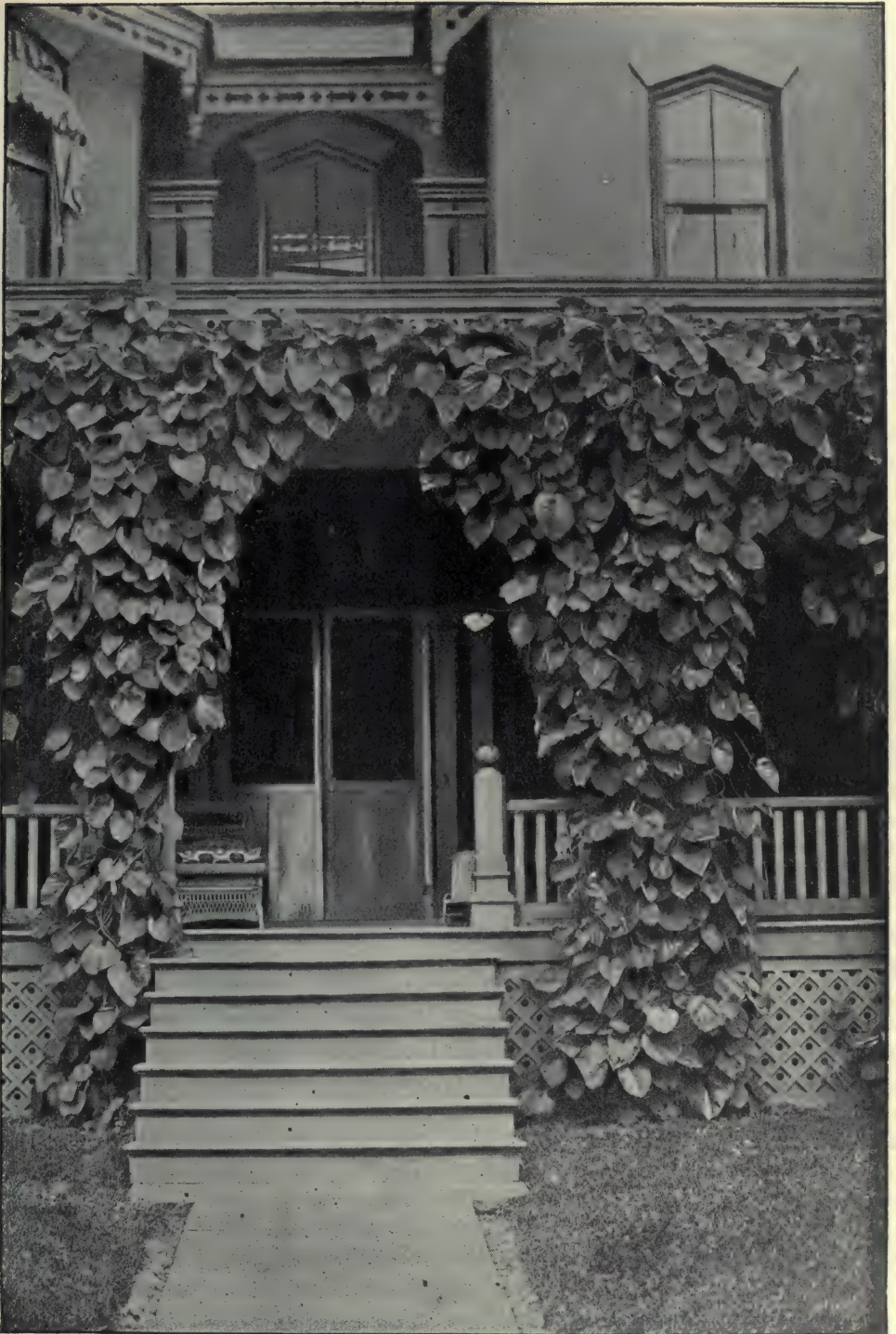


FIG. 1889. ARISTOLOCHIA.

potted now to ensure early flowering. Stand these outside and give them the same treatment as the Freesia. Pelargoniums should be cut back to within an inch of the old wood. After the plants show signs of growth shake them out from the old soil and re-pot them into smaller pots in rather sandy soil. Give them very little water until well established after re-potting.

Gloxinias that are out of flower may be gradually dried off. Bunch roses must be kept well syringed and the buds picked off.

FLOWER GARDEN. Watering and keeping down the weeds will be the principal work this month. Attend to staking and tying tall growing plants.

VEGETABLE GARDEN.—Celery and late

Cabbage will require plenty of water. Celery may still be planted for late winter use. A row or two of Beets may perhaps give better results if sown now than will those sown in July. Spinach sown now often comes in for use in fall, and will sometimes stand through the winter as well as later sown seed. The end of August or early in September is about the best time to sow Spinach that is wanted for early spring use. Clear off all plants from which the crop has been taken; the ground will be useful for Spinach, Celery, Radishes, etc. Keep down the weeds and draw a loose mulch of earth up to the roots of growing plants where possible; it helps them through the dry weather.

HORTUS, Hamilton.

PREPARATION OF PLANTS FOR WINTER.

PLANTS intended for Winter flowering should be grown for that especial purpose. It is a mistake to think that plants not grown during the summer with this end in view can be made to do satisfactory work in the winter. As a general thing, plants flower best in summer, and if we let them have their way, they will bloom freely then and take their rest later on, when if we had our way they would be full of flowers. It will be seen, therefore, that we have to reverse the natural order of things, to a great extent, and oblige the plants intended for winter flowering to take what rest they receive during the season at the time when they would be producing flowers if left to themselves. This we must do, with most plants, if we expect them to make the window-garden attractive. We must look ahead—anticipate—and so treat our plants that they conform to our opinion of what is best for them. This they will do if we give them to understand that we expect them to be governed by us, for plants are generally tractable, but this they will not

do unless we hold fast to the treatment we set out with. Plants are like children. They are obedient when they know that we “mean it,” but if our government of them is half-hearted and vacillating, they are pretty sure to take advantage of our lapses from authority and insist on having their own way.

Some persons tell me that they do not understand why a plant should not bloom in winter after having been allowed to bloom all summer. These persons have given the subject but little thought, or the reason would be apparent to them with but little effort. It is not natural for a plant to keep on growing and flowering the year round, any more than it would be for us to keep on working from week to week, without stopping to sleep or rest. True, we might get along with less sleep than we are inclined to take—indeed, we might accustom ourselves to get along with but very little, but such a practice would result in the lowering of the vitality of the system to such an extent that we would be utterly unable to do good

work, or a great deal of it. It is a law of nature that action must be followed by rest. After exhaustion, resulting from work, there must be an opportunity for recuperation, and this rest, this recuperation, can only take place under favorable conditions. If we try to rest amid noise and bustle, we only half rest. If a plant tries to rest amid conditions which prevail when growth goes on, it is never able to attain to that degree of relaxation which must accompany the phenomenon of perfect rest. In this respect men and plants are alike. "All work and no play make Jack a dull boy," they used to say, and the truth of the saying is just as pertinent to-day as it was years ago, and it applies to all animate things. Overwork prevents full development. It interferes with good work. Every expenditure of vital force must be made up for by a period of rest, in which the system is given a chance to get back to the condition it was in before the effort was made which brought on exhaustion. This law cannot be ignored without disastrous results in any line of life. But this law we constantly violate, and the result is debility, if not positive disease, and it is but a question of time, if the violation goes on, when positive disease must set in.

Hundreds of complaints similar to this one come to me during the year. "What can be the matter with my geraniums? They have hardly had a blossom on them this winter. They are growing, but I want flowers instead of leaves. They are good flowering kinds I know, because they bloom profusely all summer." Such a complaint answers the question asked in it, but the questioner does not know this. The fact that the plants bloomed all summer explains fully why they failed to bloom in winter. They exhausted themselves then, and they are obliged to take the winter to rest in. If the owner had kept them from blooming in summer, and had given just

enough water to keep them from drying up and no fertilizer to excite growth, and all buds had been removed as soon as discovered, the plants would have been nearly dormant and would have remained so until giving more water started them into more active growth. Then some good fertilizer could have been given, or they could have been repotted into fresh, rich soil, and by Winter they would have been strong and vigorous and anxious to flower. This is the treatment all plants intended for winter flowering should have. Keep them as nearly at a standstill during the summer as possible. Of course they will grow some. But whatever growth is made will be sturdy and strong, if slow, and they will come to their winter's work in the best possible condition. Most amateurs will see that this is almost opposite to the treatment they give their plants in summer.

The production of flowers exhausts a plant much more than the production of leaves. Therefore, it is very important that all buds should be removed at once, that all the strength of the plant may go into its branches. The ends of new branches should be nipped off from time to time during the season, to force the plants to branch, and thus become bushy and compact. The more branches there are the greater the number of blossoming points. Geraniums will need especial attention of this kind, because they have a tendency, if let alone, to grow up, up, up, and form tall, leggy specimens with few branches. Such a plant is never very pleasing, and it will have few flowers. But a properly trained plant will be compact and symmetrical, and often it will have a dozen or twenty clusters of flowers on it at a time. The superiority of such a specimen will be readily apparent to any one seeing it alongside a specimen of the untrained geranium.

E. E. REXFORD,
in *How to Grow Flowers*.

(To be continued.)



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th. ¹⁹⁰⁷
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 30th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc., but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE CLYDE STRAWBERRY is said by some of our readers to be a poor shipper. They give it great credit as producer of fine large berries, but say that they are not firm enough to carry far in good condition. Is this a general complaint?

GILLETT'S LYE must be applied to the foliage of fruit trees with caution. At Maplehurst it was used early in June to destroy the cherry aphid, in proportion of one ten cent package to five gallons of water, and while it killed the aphid it also destroyed a great deal of the foliage.

CUMBERLAND RASPBERRY.—This raspberry fruited last year for the first time at the Michigan Experimental Station, and the report says of it: The plants are vigorous in growth and very productive. Berries large, firm, juicy and of a sweet rich flavor. This variety possesses such a combination of

good qualities as seem likely to make it a popular home and market berry.

ENGLISH GOOSEBERRIES may possibly be raised with success if carefully sprayed. Bulletin 77, Mich., says that all the English varieties, except Orange and Champion, bore good crops, having been sprayed twice with Bordeaux, and in June with potassium sulphide, three ounces to ten gallons of water. Those English gooseberries sold in Chicago at from \$1.25 and \$1.50 per sixteen quart case, which was about double the amount received for American berries shipped at the same time.

SOIL CULTURE, CEREALS AND FRUITS, is the title of a pamphlet recently published by the Department of Agriculture at Ottawa, and prepared by Dr. Wm. Saunders. In this he refers to the work of cross fertilization in progress, and points out special

characteristics of several new varieties raised by crossing Wealthy and Tetofsky on *Pyrus baccata*. These will endure the climate of Manitoba, and be of great value in that province.

BEST VARIETIES.—Mr. W. Warnock recently read a paper before the Goderich Horticultural Society on this subject. He commended the following list, viz. : *Apples*, Transparent, Primate, Duchess, Gravenstein, King, Spy. *Pears*, Bartlett, Louise, Duchess, Anjou, Clairgeau, Druard. *Plums*, Saunders, Washington, Bradshaw, Yellow Egg, Lombard, Reine Claude. *Grapes*, Green Mountain, Diamond, Brigh-ton, Worden, Wilder, Vergennes.

HORTICULTURAL SOCIETY EXHIBITS AT THE INDUSTRIAL.—It does not seem generally known that there are special prizes offered at this fair for General Collection of Fruit shown by any Electoral District Society, Horticultural Society, Fruit Growers' Association or Farmers' Institute. Mr. W. E. Wellington, our representative on the Board of the Industrial Fair, has exerted himself very much in the interests of fruit and flower growers, and has not only secured liberal prizes in these departments generally, but for the Society's exhibits above mentioned in particular he has secured for this year an exceptionally good offer of \$50 for the 1st prize and \$35 for the 2nd. Hitherto the Burlington and Louth Societies have been almost the only ones who have made exhibits, but we hope that this year some of our affiliated societies will be represented.

EXPERIMENTAL WORK.—The following experiments are proposed by Prof. Loch-head, of the O. A. C., Guelph, and we hope many of our readers will try them and report to him :

Cucumber Beetle.—Experiment—Mix an

ounce or so of turpentine in a gallon of ashes and stir thoroughly. Drop a table-spoonful on each melon hill.

Cabbage Root Maggot.—Experiment 1—Put a tablespoonful of carbon bisulphide in a hole at the base of young transplanted cabbage, and cover up the hole, so that the fumes will not escape. Experiment 2—Spray forcibly some carbolic acid emulsion (made by dissolving 1 lb. hard soap in one gallon boiling water and adding 1 pint crude carbolic acid, emulsify by agitation), about the base of the plant, some of the earth having been first removed. Replace the earth. Repeat once a week.

Onion Maggot.—Try experiment outlined in 2.

Codling Worm.—Try "Burlap" or "sack-ing," as outlined in March Canadian Horticulturist, p. 88, to prevent the attacks of the second brood. Be careful to spray well with Paris Green and Bordeaux right after bloom to kill as many of the first brood as possible.

THE ROSE BEETLE.—This insect is very destructive to apple foliage and young fruit about Grimsby this season. About the middle of June a box of these beetles were sent into this office, gathered from an apple tree which was "alive with them," feeding upon both foliage and fruit. They are considered so difficult to destroy that handpick, an endless job, is often suggested. Durham tried Paris green on these at Grimsby with great success, using eight pounds to forty gallons of water, and says he routed the enemy completely without damage to the foliage. Dr. Fletcher says : Handpicking would be a rather tedious practice to clear vines and apple trees from this pest. It is claimed by Prof. Webster that if the beetles can be touched with a spray of whale-oil soap it destroys them. This would be much better than handpicking. Beating might be useful, but they are so extremely active that

I fear few would fall on to the sheet placed beneath the trees to be beaten. Single rose bushes, or vines, can of course be covered

with mosquito netting, but this is impracticable on a large scale. The injury to apples is much less common than to grapes.

QUESTION DRAWER.

Excrecence on Elm Twig.

1171.—SIR.—Enclosed I send you a cutting from one of my American Elms planted 12 or 14 years ago; I also notice a red, juicy matter exuding from some of them, with a large knotty substance growing on the trunk of the tree.

Port Hope.

J. HELM.

The excrecence on the small elm twig from Mr. Helm, Port Hope, is merely an effort of the elm tree to overcome a former injury which may have originally been caused by the Woolly Aphis of the elm. These woody nodular growths are frequently found on the Canadian ash and apple.

Ottawa.

J. FLETCHER.

1172. SIR,—Kindly advise me in the Horticulturist what is the best variety for size and flavor to be planted in clay soil for home consumption.

A SUBSCRIBER.

I presume the Subscriber means by "*for home consumption*" for his own table, and asking for flavor he wants a berry of quality. If am right in my surmise, I would name the "*Annie Laurie*" as such a berry. It is a staminate, a seedling of Mr. Beaver's, of

Ohio; bright, shining scarlet in color, gold seeds on the outside; very much resembling the Jersey Queen in appearance. It is of the very finest quality, in fact you might take it for a standard of quality; it is medium to late in season; it is fairly productive; the very finest table variety, and is a fine one for canning; it is a staminate variety. But if the subscriber means by home consumption the home market and wants to know the best market variety, I have no hesitation in naming the Clyde as the best for such purposes. A strong grower, staminate, plant very healthy, fruit very large, firm, good flavored and a wonderful producer of the largest berries; stands dry weather among the best. The Clyde has done well the past season. It seems to have succeeded well in clay, as well as on the lighter soils. It is highly spoken of wherever grown. Stands easily first among strawberries for all purposes.

Port Rowan.

E. B. STEVENSON.

Open Letters.

Fruit Prospects About Goderich.

SIR,—The prospects for fruit are not what was expected earlier in the season in this district. There are no plums scarcely, cherries were very few; the birds left us the pits of the early ones, the few there were. We had a fair crop of Rockport. This is the best variety I know of in this neighborhood. It is a fine meaty cherry with a small pit. Pears with us are also scarce, except the Bartlett, which is good. Apples—some trees blossomed freely, but the fruit is very thin on the

trees. What there is looks very well. On the whole there will be a very light crop.

We are not much troubled with the tent caterpillar in this section, I am glad to say. The Duchess seems to be the heaviest yielder with us. The small fruit, as strawberries and raspberries, is a fair crop. Gooseberries rather light; currants good. I find during haying that the grasshoppers are very scarce this year.

Goderich.

WALTER HICK.

(Draft)

DEAR SIRS,—I am directed by the Honourable the Minister of Agriculture to state that representations have been made to the Department of Agriculture by many of the chief shippers and receivers of Canadian apples and cheese that it is desirable that the holds and other parts of the steamships in which apples and cheese are carried to Great Britain should be ventilated by forced circulation of air during the voyage.

It is well known that cheese and apples generate heat during the process of curing and ripening. Unless provision is made for the removal of the heat thus generated, the places where the apples and cheese are carried become heated, to the damage of the flavor and other qualities of these products.

The shippers of these products have represented to this Department that it would be greatly to the benefit of all these connected with the trade in these products—producers, merchants and the steamship owners—to have ventilated accommodation for them on all the steamships. Similar representations have been made to the Department from importers of these products in Great Britain.

I am directed to say to you that, to encourage the equipment of steamships which are in the trade to carry cheese and apples with the ventilating shafts and fans which are necessary for the purpose indicated, the Minister has authorized the payment of \$100 toward the initial expense of fitting up each approved steamship, to be paid after such ventilating equipment has been kept in use for at least three voyages.

A blue print illustrating the provision that can be made for such ventilation, is sent to you under another cover. A number of the steamships sailing between Canadian ports and Great Britain have already been fitted up in accordance with these plans, and the results have been satisfactory.

Two or more agents of this Department will be at Montreal to observe how cheese and apples are loaded in the various steamships in order that the Department may be able to make recommendations to the producers and shippers of these products, looking towards improvement of their quality and the condition of the packages. It is intended to have agents of this Department also in at least four of the cities of Great Britain to observe the condition in which cheese, butter and apples particularly are discharged from the various steamships.

The names of the steamships, together with a statement of the facts as to whether they are properly ventilated, will be published from time to time by the Department, in accordance with the reports received from these inspectors, in Canada and Great Britain.



FIG. 1890. CLIMBING HYDRANGEA.

As the safe carriage of these products will be to the benefit of all concerned, the Department ventures to expect that as on former occasions it will have the hearty co-operation of the steamship owners and agents.

Yours truly,

JAS. N. ROBERTSON, Commissioner.

Is the Love for Flowers Diminishing in the City of Hamilton?

On the 21st June the Directors of the Horticultural Society held their annual flower show, which was certainly a very fine show of cut flowers, and was very creditable to the untiring efforts put forth by the President and Directors. The display of roses and herbaceous cut blooms was particularly good, and some of the specimens not often seen in this country, such as the Rhododendrous, Ghent and Mollis varieties of hardy azalias grown out of doors. There was a large display of roses by a number of exhibitors; the peonies were also very fine. We noticed also very fine blooms of the following: *Digitalis* or Fox Glove, *Campanulas* (Canterbury bells), *Iris*, *Poppies*, *Pyrethums*, *Lychnus*, *Hemerocalus*, *Herbaceous Spireas*, etc. Mr. Wild exhibited the best samples



FIG. 1891. FLOWERING CYME
OF HYDRANGEA.

of strawberries and gooseberries to be seen this year. Mr. Knox had a basket of cut blooms of his climbing hydrangea, from Japan, the only one of its kind in Canada. It clings like an ivy against his residence.

We reproduce from page 300, 1899, a photograph of this rare climber growing on the house of Mr. John Knox, which Mr. Robertson considers is valuable. We now add a photo of one of the flower cymes, which are from six to ten inches across, and are composed mostly of fertile flowers, which however do not fruit.

Mr. Knox also exhibited some fine roses, of which he had taken great precautions to keep shaded with cotton from the fierce sun, when under such conditions the blooms lasted much longer.

Mr. Ogilvie had made a good display of roses, and as for the genial President, Mr. A. Alexander, he carried off the most of the prizes, of which he may well be proud; his grounds are a credit to himself and the city, and are well worthy of a visit by the majority of professionals; the cleanliness, taste and care there resorted to is wonderful in a busy business man. He is certainly one that loves flowers, and the term pot-hunter does not apply to him; in other words he does not work up his flowers so as to catch on to a few cent prizes; it is all love with him for the beautiful.

We cannot go further without asking what has become of the gentlemen's gardeners about Hamilton. Can it be that they, themselves, or their masters are unwilling to help along the amateurs, and to instil into the young citizens a love for flowers. The city florists also were not well repre-

sented. I think they could not be looking out for their own interest, for above all others they should try to stimulate a love for flowers, from which they make their living. Again, is it not surprising how few ministers take any interest in flowers. I often thought they should advise the young of their congregations to visit such places as flower shows, and be there themselves to give and receive pointers. It is certainly encouraging to see that we are not all alike in this respect. The City of Hamilton has done a good work on the Gore. Her aldermen must be flower-lovers, for there are great improvements in this line within the past few years. Ontario Government grants are liberal towards such work; City Councils are likewise in beautifying parks and squares. Let us then get the wealthy gentlemen to take an interest, and the clergymen also, and then we will all be good citizens and admire one another's flowers without envious eyes.

Niagara Falls.

R. CAMERON.

Fruit Prospects.

SIR,—Our prospects for an abundant crop of apples and pears and cherries are very promising. The fruit is larger than usual at this season of the year, and seems perfectly free from Black Spot. After two hours' search I did not find a wormy apple. The Codling Moth does not seem so plentiful as last year, although we catch a few occasionally. There are quite a number of new varieties, both in apples and pears, that have fruited this season of which I will report more fully on when the fruit is gathered. According to present appearances our fruit crop will excel any former years both in quantity and quality. A very decided difference is seen between sprayed and unsprayed orchards, both in fruit and foliage. The wood growth on most varieties is healthy and vigorous. The late rains have made all orchards look brighter, and the outlook for a full crop of fruit of all kinds, except plums, is all that can be desired. Grapes, currants, gooseberries and blackberries are quite forward and heavily loaded. We are thinning a number of Keiffer and Bartlett pears in order to keep them from breaking down. The pears received from France are all making good growth and several of the first lot have fruit on them.

Whitby, 12th July, 1900.

R. L. HUGGARD.

Lawns and Walks.

SIR,—Under above heading in July issue of your valuable paper, I notice it is recommended that weeds in gravel walks be pulled up or rough salt or crude carbolic acid be used to kill them. A much simpler and very effective way is to use a solution made with Gillett's Lye. This method is also the correct thing to prevent weeds and grass growing through slat walks, care being taking not to allow the Lye solution to touch the slats of woodwork or the edgings or lawn grass. Gillett's Lye, besides being useful for spraying purposes, can be used to advantage in hundreds of ways around both country and town houses.

Toronto, July 9th, 1900.

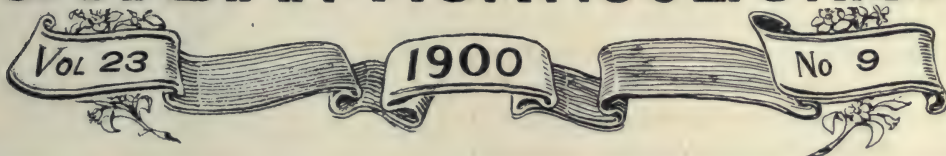
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FIG. 1892. THE CUMBERLAND RASPBERRY.

Photo by Miss Brodie


THE CANADIAN HORTICULTURIST



** SEPTEMBER **

OUR PLANT DISTRIBUTIONS FOR 1900.

THE CUMBERLAND BLACK RASPBERRY.

 ON the 11th of July, we received a basket of fine branches of the Cumberland Raspberry from Mr. W. E. Wellington, grown at Fonthill. Nearly all the berries on each branch were fully ripe, and as Gregg was not yet in the market we were impressed with the earliness of the variety, as well as its evident productiveness. We accordingly took a photograph of it which forms the frontispiece of this number, and have decided to place it on our spring plant distribution list for 1901. The berries are of fine size and good flavor, and these characteristics combined with their earliness and productiveness make the Cumberland a most promising commercial variety. This year it began to ripen at Fonthill about the 5th of July. The plant is thought to be a seedling of Gregg, with a dash of blackberry blood in it. It originated nine years ago with David Miller, of Maryland, and is thought to be the most profitable and deservable market variety yet known. If we are to believe all the introducers say of it, it is the "Business Berry," having immense size, firmness and great

productiveness and wonderful hardiness, enduring without injury, we are told, 16° below zero, (Fahr). In size it is said to be "simply enormous," the berries often reaching $\frac{7}{8}$ of an inch in diameter; those photographs were $\frac{3}{4}$ of an inch in diameter, but the dry season would account for their being a little below size. Now, if the berry equals half what its introducers say of it, surely it is well worth introducing to Canadian Fruit Growers.

SPIRÆA, ANTHONY WATERER,

(*S. Japonica Bumalda.*)

At the same time that the Cumberland Raspberry came to hand, July 11th, we also received from Mr. Wellington a basket of the new Spiræa, which is one of the most desirable of the newly introduced shrubs for the lawn. He writes, "They are quite a sight in the Nursery rows, and they continue blooming till frost comes." The R. N. Y. says of it, "The most satisfactory Spiræa in existence; a constant bloomer. The plant is of low growth, the umbels a bright pink color. A profuse bloomer."

Prof. McCoum, of the Central Experimental Farm, Ottawa, writes the following description of it: "Origin, Europe; height, 1 foot; begins to bloom first week in July, and continues in flower a long time. Flowers, a bright, purplish red, borne in compact heads. One of the prettiest dwarf shrubs yet tested at Ottawa."

The members of the Ontario Fruit Growers' Association will be pleased to learn that these two plants, the Cumberland Raspberry and the Spiræa, Anthony Waterer, have been selected for the plant distribution in the spring of 1901, and our subscribers will have an opportunity of testing them.

TO REMOVE FRUIT STAINS from enamel saucepans use chloride of lime. Fill the saucepan with cold water, add one teaspoonful of chloride of lime to each half gallon, and boil until the stain is removed.—*Rural New Yorker*.



FIG. 1893. SPIRÆA, ANTHONY WATERER.

CURRENTS IN 1900.



FIG 1894. VERSAILLAISE (REDUCED).

FOR a few years past Currant growing has gone somewhat out of favor owing to the low prices prevailing. Fortunately for the grower a much more encouraging state of things prevails, and instead of 3 or 4 cents a quart, they are now worth in our best markets 5 and 6 cents, which leaves a good margin to the grower, even after expenses of sale are deducted. The acid of the currant is counted very wholesome, and in summer season the free use of currants, either fresh, spiced, or in jelly, is worth far more to the human system than most people imagine.

In our grandfathers' gardens currants were usually grown against the fences and often left unpruned or uncultivated, and the old Red Dutch was almost the only variety



FIG. 1895. FAY (REDUCED) SHOWING PRODUCTIVENESS.

known. The quality was excellent, for it had a brisk, sprightly, mild acid flavor, which gives it first rank; but its small size made it a poor market berry, and slow of harvesting.

Now a great change has come over currant cultivation. With the advent of the Cherry currant, so large in berry that it captivated the buyer, and so easy to gather as to reduce the cost of harvesting, there came a great impetus to planting, some asserting that \$200.00 an acre was a common return for the crop. Then came Fay's Prolific with a wonderful flourish, and everybody planted it; and now several others contest the first place for the commercial garden.

To determine the best variety of each color for our Ontario fruit growers to plant was the purpose of the Provincial Department of Agriculture in starting a Small Fruit experiment station at Burlington, in charge of A. W. Peart, who has now sixteen varieties of Red and White Currants in bear-

ing. On the 23rd of July the writer visited this station and found Mr. Peart quite ready to leave the interests of his four hundred acre grain farm to take us through his experimental plots on plums, pears, peaches, grapes and small fruits. In looking over his currants we found his Fays very fine, with bunches about four inches in length. The bush is not equal to that of the Cherry in vigor or endurance. The illustration, Fig. 1895, shows excellent fruiting habit, in which point there is little to choose between the two varieties, the latter of which is of European and the former of American origin. Very similar to these two popular varieties is the Versailles, from France, differing from the two former in having berries of less uniformity in size, and on the whole averaging smaller. Some of the bushes at Mr. Peart's were a marvel of productiveness, and we thought it worth while to take a snap to show their manner of fruiting. (Fig. 1894.) Belle de St. Giles, Fig. 1896, is a magnificent looking currant, so large and fine, but it does not appear to be as productive as the varieties mentioned above. The



FIG. 1896. BELLE DE ST. GILES (REDUCED.)



FIG. 1897. RED CROSS (REDUCED).

Wilder, in Mr. Peart's opinion, is the finest market currant in his collection. The bunches and berries are of the largest size, larger than either Fay or Cherry, and quite equal to those of the St. Giles, and in his opinion it is more productive than any of them and better in quality. Fig. 1899.

Fig. 1897 shows a fruiting branch of the Red Cross Currant, one of the newest varieties which was originated by Jacob Moore. It has little to distinguish it from Fay or Cherry in its size and appearance. Mr. Green, the introducer, says, "It makes twice the growth that these varieties make; the fruit is often so dense on the stalks as to hide the leaves entirely from view. Color bright red; berries set in a compact cluster with long stems; convenient for picking." Mr. Peart in his report for 1899 says the bush is medium in vigor and moderately productive. Another season's trial may settle the character of this variety with greater certainty.

Of the white varieties, the long bunch Holland has impressed us most favorably at

Maplehurst, the bush is so healthy and the bunch and berry so large. Bnt Mr. Peart places the White Imperial, Fig. 1898, at the head of his list of white currants. It is not quite as large a berry as the Holland and shorter in bunch, but perhaps it is more productive, and it has a mild pleasant flavor. There is no use planting white currants for profit, as there is little demand for them in the market, so that we can only recommend them for home uses.

The pruning of the red currant is so important that we add a few remarks thereon. The old method of training in tree form has been long given up by us, because the borer often destroys the old stem, and new shoots are needed to take its place. We always allow a half dozen shoots to grow from the root, cutting out the older stems from time to time. Those that remain we spur prune, cutting back all laterals to two or three buds, a treatment that will result in the formation of fruit spurs along the whole length of the main branch.



FIG. 1898. WHITE IMPERIAL (REDUCED).



FIG. 1899. WILDER (NATURAL SIZE).

THE REPORT ON GRADING APPLES.—D. S. Beckwith, of Albion, N. Y., Chairman of the Committee on Grades, presented a report to the National Apple Shippers of the U. S., which was adopted in the following form :

“Resolved that the standard for size for No. 1 apples shall not be less than $2\frac{1}{2}$ inches in diameter, and shall include such varieties as the Ben Davis, Willow Twig, Baldwin, Greening and other varieties kindred in size. That the standard for such varieties as Romanite, Russett, Wine Sap, Jonathan, Missouri Pippin and other varieties kindred in size shall not be less than $2\frac{1}{4}$ inches, and furthermore that No. 1 apples shall at time of packing be practically free from the

action of worms, or defacement of surface or breaking of skin ; shall be hand picked from the tree and be of a bright and normal color and a shapely form.

“No. 2 apples shall be hand picked from the tree ; shall not be smaller than $2\frac{1}{4}$ inches in diameter. The skin must not be broken or the apple bruised. This grade must be faced and packed with as much care as No. 1 fruit.”

Every member of the National Apple Shippers' Association is requested to incorporate the above resolution in their apple contracts for this year and, as far as possible, use such grading when picking.—*Fruitman's Guide*.

POLLINATION IN ORCHARDS.

Varieties which are often self-sterile.

SELF-STERILITY is not a constant character with any variety. It is influenced by the conditions under which the tree is grown, as are the size, shape and color of the fruit. The adaptation of a variety to soil and climate has much to do with its self-sterility, and if a tree is poorly nourished it is more likely to be infertile with its own pollen. No one can separate varieties of fruit into two definite classes, the self-sterile and the self-fertile. Thus Bartlett and Kieffer are often self-sterile, but there are orchards of both which are self-sterile. The same may be said of many other varieties. The best that can be done, therefore, is to give a list of those varieties which *tend* to be more or less self-sterile and which it would be unsafe to plant alone.

Following is a conservative list of these risky varieties, drawn both from experimental work and from the reports of over five hundred fruit growers, who have favored me with their experience. *Pears* : Angouleme (Duchess), Bartlett, Clapp, Idaho, Kieffer, Nelis. *Apples* : Bellflower, Primate, Spitzenburg, Willow Twig, Winesap. *Plums* : Coes' Golden Drop, French Prune, Italian Prune, Kelsey, Marianna, Miner, Ogon, Peach, Satsuma, Wild Goose, and according to Waugh and Kerr, all other varieties of native plums except Robinson. *Peach* : Susquehanna. *Apricot* : White Nicholas. *Cherries* : Napoleon, Belle de Choisy, Reine Hortense. Most of these varieties are self-fertile in some places, but the weight of evidence shows them to be uncertain.

It must not be inferred that all other varieties are always able to set fruit when planted alone. There are some, however, which have exceptionally good records for faithfulness when planted in solid blocks, other

conditions being favorable. Among these are : *Apples* : Baldwin, Ben Davis, Fallawater, Janet, Oldenburg, Rhode Island Greening, Red Astrachan, Smith Cider. *Plums* : Burbank, Bradshaw, DeSoto, Green Gage, Lombard, Robinson and some of the common blue Damsons.

All this goes to show that the problem of self-sterility is as much a study of conditions as of varieties. We can set no limit ; we can only indicate tendencies.

Many large blocks of Kieffer are being planted with no other varieties intermingled, and it is an important point to know whether this practice will give the best results. Eight blocks of Kieffer in New Jersey and Delaware have been reported as completely or partially unfruitful because of self-sterility, and there are also many solid blocks of Kieffers in the same States which bear well. Kieffer is unreliable, especially on the Delaware peninsula. A large block of Kieffer may be productive, but it does not pay to take the risk, particularly since the pollen of other varieties is likely to give better fruit, as will be seen later on.

SELECTING THE POLLINIZER.

Let us suppose that we intend to plant a large block of an uncertain variety, as Kieffer, because it has distinct merits as a market sort. We wish to plant with it some other variety to make it fruitful. There are two points to be considered when selecting a pollinizer for Kieffer or for any other self-sterile variety ; the choice should not be indiscriminate. These are simultaneous blooming, and mutual affinity.

The first and most important point is that the two shall blossom together, since the only way in which a pollinizer can make a self-sterile variety fruitful is by supplying it

with pollen. This means that the pistils of the self-sterile variety must be receptive when the stamens of the pollinizer are ripe, which is possible only with simultaneous blooming.

The comparative blooming of varieties is more or less a local problem. Differences of latitude, altitude, soil, nearness to large bodies of water, and weather conditions during the blooming season not only hasten or retard the time of blooming but also disturb the order in which the different varieties open. Varieties blossoming together at one place may not another. The best that can be done in the way of generalizing on the question of simultaneous blooming for cross-pollination is to make a chart for each well marked geographical district. To this end several hundred fruitgrowers have kindly taken notes the past two seasons, and when sufficient data is collected these charts may be published. They will indicate in a general way which of our standard commercial varieties may be expected to bloom together; yet each fruit grower should be prepared to make minor corrections for his own farm. Until more definite knowledge is available, each orchardist should learn how varieties bloom in his own neighborhood before planting them for cross-pollination. It is better, but not always necessary, that the two should bloom exactly together; if they overlap two or three days that is often enough.

It is sometimes desirable to plant varieties of different botanical species together for cross-pollination, but this will often be impracticable because of the difference in their blooming seasons. Thus the Oriental pears, as Kieffer, and the European pears, as Bartlett, usually do not blossom together. Kieffer generally blooms several days before Bartlett, hence it necessary to pollinate it with a variety of its own class, as Le Conte or Garber. In some places, however, the two groups blossom approximately together, and then varieties like Bartlett and Seckel should

be used in preference to Le Conte or Garber, since their fruit has a greater market value and the trees are less likely to blight. Whenever the European pears are used as pollinizers for Kieffer it would be well, if otherwise practicable, to work them on quince roots. Standard Kieffers will often bloom two or three years before standard Bartletts planted at the same time, and unless early blooming dwarfs are intermingled they may be unproductive these first few years.

The three classes of commercial plums—Japanese, domestic and native—will usually bloom at different periods in the order named; but when a "spell" of warm weather succeeds a cold and backward spring, varieties of all these groups will come on nearly together and cross-pollination will result. In some places the blooming seasons of these groups overlap so that some varieties of each might be used regularly for cross-pollination.

THE MUTUAL AFFINITY OF VARIETIES.

Another point to be looked after when selecting a pollinizer for Kieffer, or for any other self-sterile variety, is the mutual affinity of the two. That is, will the pollen of the pollinizer fertilize the pistils of the self-sterile variety readily and also develop them into high grade fruit? At present but little is known about the matter. Taking first the possibility of cross-pollination between varieties of different species, there seems to be no doubt but that many varieties of native Japanese and domestic plums will fertilize each other. Orchard experience in many places indicate this; as when Satsuma is used to pollinate Coe's Golden Drop in California prune orchards. Several successful crosses between the three were also made at Ithaca the past season. Amongst these are Abundance \times Grand Duke (Fig. 1903), Georgeson \times Wayland, Berckman \times Coe Golden Drop, Coe Golden Drop \times Satsuma. That

is, if we wish to use Satsuma as a pollinizer for Coe Golden Drop, or Lombard for Wild Goose, the probability is that the combination would work, if the two varieties bloom together ; but since the three groups usually bloom at somewhat different periods there be no general cross-pollination outside the limits of the species.

Numerous crosses and common orchard practice have also shown that the European pears, as Bartlett, and the Sand Pear hybrids,

Fig 1900, compare the size of the Seckels which received Kieffer pollen with those which had Lawrence pollen. The specimens shown are typical of thirty fruits secured from these two crosses in 1899.

It is necessary to study not only the mutual affinity of varieties belonging to different species, but also of varieties of the same species. Some varieties will not fertilize each other, though blossoming at the same time. Kerr has found that Whittaker plum



FIG. 1900.—SECKEL. FROM KIEFFER POLLEN ABOVE, FROM LAWRENCE POLLEN BELOW.

as Kieffer, will fertilize each other regularly when they bloom together. Several Kieffer fruits from Bartlett pollen and Bartlett fruits from Kieffer pollen were secured in the crossing work of 1899. In fact, my experience has been that if Kieffer pollen is put on the pistils of our common pears, of the European class, it will usually produce larger fruit than pollen from most varieties of that type. Kieffer is a good pollinizer for Bartlett, Angouleme, Clapp, Nelis and the like varieties, when they bloom together. In

will not fertilize Wild Goose nor will Early Red help Caddo Chief. Again, the pollen of some varieties will give better fruit than that of others when used on the pistils of self-sterile or even on self-fertile varieties. There is very little definite knowledge as to what varieties are best adapted for pollinating self-sterile sorts. Waugh and Kerr have studied this point with native plums for several years and their judgment is united in a table of recommended pollinizers for plums (12th Report Vt. Ag. Ex. Sta.) A few results

from crosses made at Ithaca in 1899 will illustrate this point. Fig. 1900 shows the comparative size of Seckel when pollinated with Kieffer and with Lawrence pollen. Clapp pollinated with Kieffer was also larger than Clapp pollinated with Lawrence or Louise Bonne. Howell blossoms which received the pollen of Clapp gave fruits of nearly twice the size of those which received Bartlett pollen. Bartletts crossed with Angouleme were larger than Bartletts crossed with Sheldon. In some cases no difference could be noticed, yet most of our standard commercial varieties will be likely to yield

Prune, Green Gage, Italian Prune (Fellenburg); Satsuma with Abundance, Burbank, Red June; Miner with De Soto, Forest Rose, Wild Goose; Wild Goose with De Soto, Newman, Miner.

DOES CROSSING CHANGE THE APPEARANCE OF THE FRUIT?

In connection with mutual affinity of varieties which are selected for cross-pollination, there comes the question of the "immediate influence" of pollen. For instance, if Seckel pollen is put on Kieffer pistils, will it impart the Seckel flavor, color and characteris-

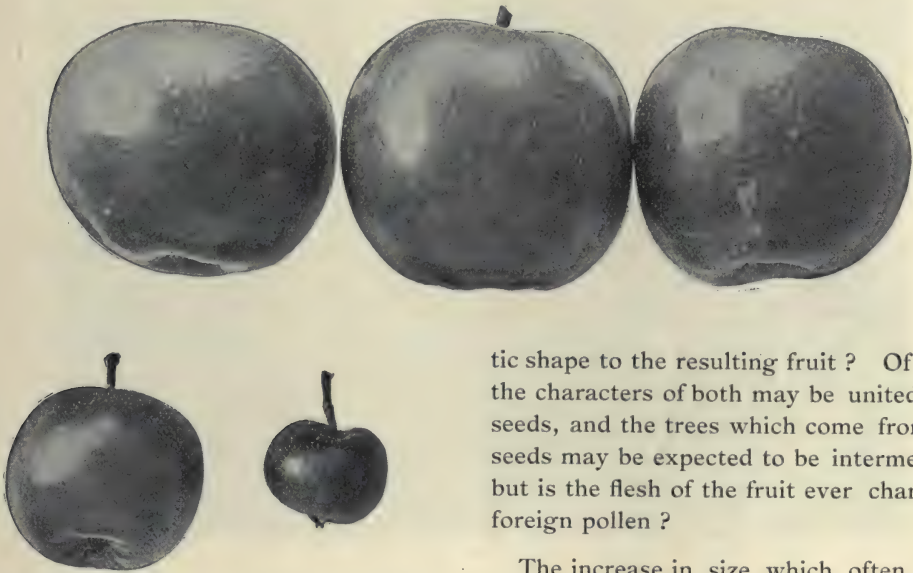


FIG. 1901.—Stark. From Wagner pollen above, from Stark pollen below. Marked benefit from cross-pollination.

enough better fruit when planted with some varieties than with others, to make a study of this point worth the while.

Some of the combinations which have been very successful in the commercial orchards of the country are: Bartlett with Nelis, Flemish Beauty, Easter, White Doyenne; Idaho with Bartlett; Kieffer with LeConte, Garber; Coe Golden Drop with French

tic shape to the resulting fruit? Of course the characters of both may be united in the seeds, and the trees which come from these seeds may be expected to be intermediates; but is the flesh of the fruit ever changed by foreign pollen?

The increase in size which often follows crossing cannot be called a true immediate influence, for the foreign pollen generally stimulates the fruit to be a better growth because it is more acceptable to the pistils, not because it carries over the size-character of the variety from which it came. In 1899, Hyslop Crab pistils which were fertilized with pollen from the great Tompkins County King, grew into fruits of the usual crab size. An immediate influence in size may be possible, for the size of the fruit is nearly as constant a varietal character as is the shape;

but most of the increased size in crosses of orchard fruits probably arises from the fact that the pollen is more acceptable.

Setting aside the usual gain in size resulting from crossing, we wish to know whether there will be any change in the shape, color, quality and season of ripening of the fruit. A few undoubted instances of this influence have been noticed with some plants in which

ence of pollen from observation, rather than from experimental proof. It does not necessarily follow that "sweet and sour" apples are due to cross-pollination, nor that the russet on Greening apples borne on the side of the tree next a Roxbury was produced by the influence of the Roxbury pollen.

Most of the changes in fruit which are attributed to the influence of cross-pollina-



FIG. 1902.—LONGFIELD. FROM GREENING POLLEN BELOW, FROM LONGFIELD POLLEN ABOVE. MARKED BENEFIT FROM CROSS-POLLINATION.

the seed is the principal part of the fruit, as the mixing of sweet corn and field corn; also perhaps in various peas and beans. When the seed is surrounded by a fleshy pulp, however, as in our common orchard fruits, it is still in dispute whether this pulp is influenced, however much the seeds themselves may be. Most men have formed their convictions about the immediate influ-

tion are due to variation. Every bud on a tree is different in some way from every other bud on that tree and may develop unusual characters, independent of all the other buds, according to the conditions under which it grows.

The best way to determine whether there is an immediate influence of pollen is by hand crossing. Among the forty-five different

crosses which were made in 1899 with this particular point in view, not one showed any change which could be positively attributed to the influence of pollen. Even the concentrated sweetness of Seckel made no impression on the poor quality of Kieffer; nor were there any constant differences in color, shape or season of ripening in any of the other crosses. Nearly everybody who has crossed varieties of orchard fruits has had a similar experience.

Most of the evidence supporting the theory that there is an immediate influence of pollen

sometimes exerted. But it is certainly much less frequent than is commonly supposed.

THE DISTRIBUTION OF THE POLLINIZERS.

Having selected a pollinizer with reference to simultaneous blooming and mutual affinity, the fruit-grower now wishes to know how many trees will be necessary to pollinate the self-sterile variety. There are three things to be considered here: The ability of the pollinizer to produce pollen, its market value and the class of fruit to which the self-sterile variety belongs.



FIG. 1903—ABUNDANCE. FROM ABUNDANCE POLLEN ABOVE, FROM GRAND DUKE POLLEN BELOW. SOME BENEFIT FROM CROSS-POLLINATION.

in the crosses of fruits comes from observation; most of the evidence against it comes from experiment. The observer, however careful, is likely to jump at conclusions; the experimenter tries to give due weight to every influence which might bear on the problem. Since many observers and a few experimenters have found what seems to be an immediate influence of pollen on the fruit, we cannot doubt but that this influence is

Varieties differ in the amount of pollen which they produce, and the pollen production of the same variety is also greatly modified by differences in locality and season. Other things being equal, the variety which produces pollen freely could be used more sparingly in a block of self-sterile trees than one of scanty pollen production. Little comparative observation has been made on this point as yet; but as a matter

of fact, most of our common varieties produce an abundance of pollen.

The number of trees of the pollinizer would also depend largely on whether it has value itself. If we are planting LeConte to pollinate Kieffer, we would naturally try to get along with the least possible number which will do the work ; but if Bartlett's are to be used for the same purpose, we can afford to increase the proportion. Some

during the bright weather between showers. If using Garber or LeConte to pollinate Kieffer, every third row may be the pollinizer ; if using Bartlett, every other row. For apples, cherries and domestic or Japanese plums, the same proportion may be used. In a commercial orchard, the pollinizer should be planted in a solid row. Theoretically, it is much better to have the pollinizer more evenly distributed among the



FIG. 1904.—TALMAN SWEET. FROM TALMAN SWEET POLLEN ABOVE, FROM WAGENER POLLEN BELOW. NO BENEFIT FROM CROSS-POLLINATION.

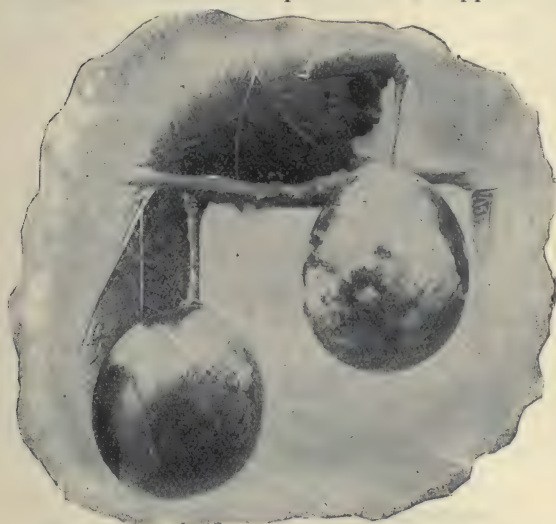
growers plant every tenth row to the pollinizer, but the proportion should usually be greater. This might be enough if the weather during the blossoming season is very favorable for cross-pollination by wind and insects ; but if it is showery, the pollinizers should be more abundant, in order that cross-pollination may be more general

self-sterile trees ; practically, it will not pay to so mix them except in small orchards.

THE ADVANTAGES OF GENERAL MIXED PLANTING.

It would appear that the only thing to do now is to find out what varieties are inclined to be self-sterile and the varieties

which are best adapted for fertilizing them. But as a matter of fact, cross-pollination gives better results with nearly all varieties, be they self-sterile or self fertile. A variety may be able to bear good fruit when it is planted alone, but it will often bear better fruit if suitable varieties are near it. Mixed orchards are more productive than solid blocks, taking the country over. It is a common observation in Western New York that Baldwins in mixed orchards are more uniformly productive than Baldwins in large blocks. Furthermore, although a variety may be able to set an abundance of fruit with its own pollen, this fruit will often be smaller than if other pollen were supplied.



1905--BRADSHAW PLUM. FROM GERMAN PRUNE POLLEN ABOVE, FROM BRADSHAW POLLEN BELOW. NO BENEFIT FROM CROSS-POLLINATION.

From a number of experiments made in 1899, a few representative results are here given to illustrate this point.

Compare the size of self-pollinated and cross-pollinated fruits in our illustrations. In some varieties the differences were very marked, as with Stark and Longfield apples (Fig. 1901-2); in others the difference was not so marked, as Abundance (Fig. 1903); while a few showed no appreciable increase in size

from cross-pollination, as Talman Sweet and Bradshaw, (Fig. 1904-5). The difference between the cross and self-pollinated Starks and Longfields is so striking that one would almost be tempted to think the self-pollinated fruits were wormy, but they are not. The self-pollinated Talmans and Bradshaws were apparently as fine in every way as the cross-pollinated fruits. Manning Elizabeth pear also was not benefited by pollen from other varieties.

The three self-pollinated Longfields here shown (Fig. 1902) have but five sound seeds; while the two crossed specimens had seventeen sound seeds. In general, cross-pollinated fruits have more good seeds than self-pollinated fruits, but there is no constant relation between the size of a fruit and the number of seeds it contains. Some of the biggest apples or pears may have only two or three good seeds. In case the ovules in one cell of an apple or pear core are not fertilized, that part of the fruit adjoining is often stunted and the fruit becomes lop-sided in consequence; but this likewise, does not always follow.

All of the above varieties are self-fertile, at least in Ithaca. They will produce fruit with their own pollen. But we have seen that some of them will produce better fruit if other pollen is supplied. Is it not worth while, then, to plant pollinizers even with self-fertile varieties—that is, to practice mixed planting with all varieties? There are three good reasons for doing this: First, some believe that self-sterility is likely to increase in the future, under the stimulus of right cultivation. Second, we can never be perfectly sure that any variety will be self-fertile on our soil and under our culture; even those varieties which are self-fertile elsewhere may be partially self-sterile with us. Third, most self-fertile as well as self-sterile varieties are benefited by cross-pollination. It is taking risks to plant a very large block of one variety. The trees

may bear just as much and just as fine fruit as though other varieties were with them, but the chances are against it.

THE POLLEN-CARRIERS.

The pollen of one variety is carried to the pistils of another in two ways : by the wind and by insects. There are many kinds of insects which aid more or less in the cross-pollination of orchards fruits, principally bees, wasps and flies. Of these, the wild

bees of several species are probably the most important. In a wild thicket of plums or other fruits, they are usually numerous enough to insure a good setting of fruit. But few if any wild bees can live in a large orchard, especially if it is well tilled. As the extent and thoroughness of cultivation increases, the number of these natural insect aids to cross-pollination decreases ; hence it may become necessary to keep domestic honey bees for this purpose.

This article, with cuts, is kindly furnished by the Cornell University Experiment Station.

LAYING OUT HOME GROUNDS.

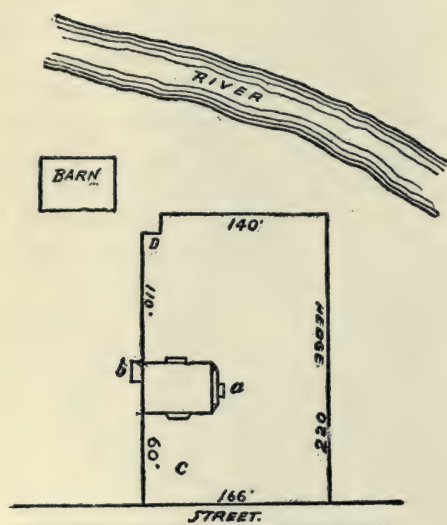


FIG. 1906. GROUNDS BEFORE PLANTING.
a, Front door ; b, back door ; c, croquet grounds ;
d, seat.

Prof. Maynard in *American Agriculturist* gives a reply to a correspondent, describing the best method of improving his grounds by planting and arrangement of walks ; and as we so often have similar enquiries we give our readers his reply in full.

Fig. 1906 represents the grounds before laying out or planting. In Fig. 1907, the same grounds after planting are

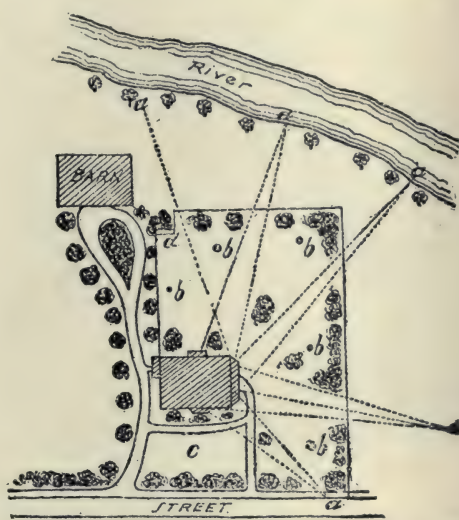


FIG. 1907. GROUNDS AFTER PLANTING.
a, Open vistas to pleasing views ; b, covers for
objectionable objects ; c, croquet grounds ;
d, seat.

shown. The entrance or gateway that leads to the front door is placed on the street line about midway of the street front, the walk running in nearly a straight line to the center of the front of the house, the dismounting block or step being at the street edge.

A drive might be run from this point to the front of the house, where a turn-round

could be made, or it could continue by a graceful sweep to the stable and end in a turn-round as in Fig. 1907. The distance, however, from the street to the front steps is not too much for anyone but an invalid to walk easily, and as a drive must be maintained in the rear, it would serve both purposes and save the front lawn from disfigurement, and also save a great deal of expense in construction and repairs. Walks or drives possess no real beauty. They are expensive to build and to keep in repair and no more should be maintained than are absolutely necessary.

In grouping trees and shrubs, the principles to be followed are to so arrange them that as many as possible of the beautiful features of both near and distant views will be preserved and improved by the grouping, and all unpleasant features covered up. The dotted lines from the principal points of view at the dwelling and focusing at the points *a a*, etc., show how the beautiful outlook or important points may be kept in

view, while the groups at or near *b* show how such objects as are undesirable may be hidden from view. These lines show also from what points outside of the grounds pleasing views may be had of the dwelling and its surroundings, a feature not to be overlooked.

The barn, which is in most cases not an object to be made conspicuous, but rather to be somewhat secluded, is covered by the trees and shrubs grouped along the drive. The seat, *d*, is represented in full view, with trees over and in the rear of it, but if desired it could be easily secluded by arranging some of the groups in front of it. The croquet grounds, *e*, are hidden from the street by a border of large shrubs, but are in full view from the dwelling.

In planting groups of trees and shrubs, the largest and tallest should be set in the center, with the smaller ones on the borders and as much variety and beauty as is possible secured in their arrangement.

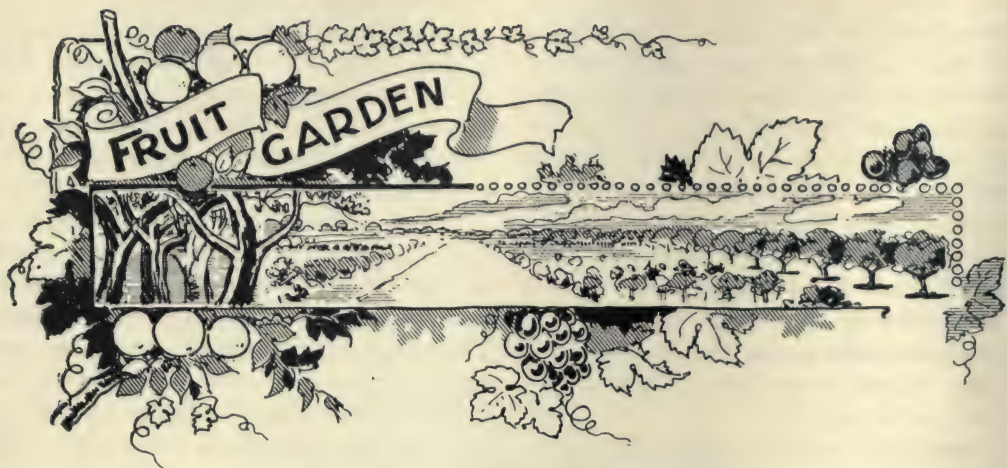
HOW TO MARKET GOOSEBERRIES—Gooseberries may be marketed either green or ripe. Some growers pick the smaller fruits green and allow the finest fruits to ripen. This is less exhausting for the bushes than it is to allow the whole crop to ripen. Others market the entire crop green, a method least exhausting to the bushes, and it also has this in its favor that the sooner the crop is in the market the less risk there is of its injury by sun-scald, mildew or other fungous or insect trouble. Each grower must determine for himself according to his local market conditions what method of handling the fruit is best for him. Green gooseberries are stripped from the branches quite rapidly. They may then be run through the fanning mill if necessary to free

them from leaves, sticks, etc., and then packed for market.

The style of package will be usually determined by the market demand. Some of the European sorts are best to grow for green gooseberries, because they attain considerable size very early in the season. Among the best sorts for this purpose are Industry (Whinham's Industry), Crown Bob and Lancashire Lad. These are red varieties and are favorite market sorts in England, either green or ripe. The White-smith is a white variety, excellent quality and productive. Wellington's Glory is also very productive, fruit large, yellowish, nearly white, and handsome in appearance.

New York.

S. A. BEACH.



FRUIT CULTURE—VII.

THE GRAPE.

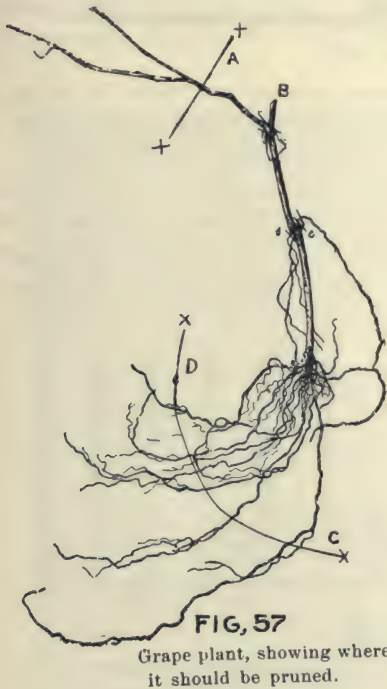
NOTWITHSTANDING the fact that there are some four millions of grape vines in Ontario, many farmers even yet do not grow a single pound of this fine fruit, especially in the northern and eastern parts of the Province, where the difficulties of grape culture are supposed to be greater than they really are. The professional vineyardist, of Southern Ontario who counts his vines by the thousand has possibly not a great deal to learn. The difficulty now is not so much the production of the fruit as the finding of a good market. But scattered through all parts of the country are people who own small vineyards which are by no means producing a high quality of fruit, and still others who, buying few or no grapes, yet have no vineyard of their own. It is to these classes more than to the commercial grower that the following remarks on grape culture are directed.

SOIL AND EXPOSURE.—The best site for a vineyard is a gentle slope facing to the south or southeast. In the low levels there is more danger from frosts, and on a northern exposure there will be some difficulty in ripen-

ing the later varieties. The grape loves a rich, warm and dry soil. The preparation of the land should include underdraining if the subsoil is at all wet or non-porous. It will thrive on sandy or gravelly soils, but on the very light soils there is a greater tendency to disease, especially to mildew. A rich, well-drained clay loam is the most satisfactory. The general opinion is that the quality of the fruit is higher on the heavier ground, though Fuller asserts the contrary.

PLANTING AND CULTIVATION.—Vines of the strong-growing varieties, like Niagara and Rogers, may be planted as one-year-olds. As a general rule strong two-year-old vines are the best to plant. Varieties like Delaware, Catawba and Moore's Early may be planted eight feet apart, but as most vineyards contain many of the strong-growing kinds which require more room, a good distance would be ten or eleven feet each way. This would allow convenient cross-cultivation before the trellis is put up, and give ample room for harrow, wagons, etc., between the rows later on. The vine should be planted fairly deep and the earth well packed

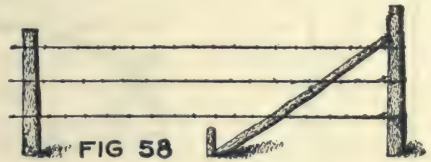
round the roots. If the roots are coarse and long cut back to about eighteen inches. Prune the top down to two three buds. Fig. 67, from Bailey's "Pruning Book," illustrates the pruning of one type of two-year-old vine. The top should be cut at A and B, the upper roots trimmed off at C and D, and the main roots cut in from E to F. Hoed crops can be grown the first three years between the young vines and thorough cultivation given. By the late fall the young vine should have made a growth of three or



four feet, and should then or in the spring be pruned to a single cane and that cane should be cut back to two or three buds. The trellis may be put up the second spring or left till the third. The young vine having got thoroughly established during the first summer will, under good conditions, make a vigorous growth the second year, not more than two canes being allowed to grow. We now come to the end of the second season,

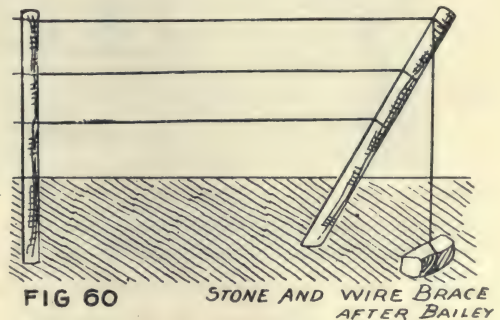
the treatment up to this time being practically the same whatever style of trimming may be adopted.

THE TRELLIS.—Various kinds of trellises have been in vogue at different times, but we need only here consider the post and wire method. Cedar or chestnut posts should be used. These can be eight feet long, sharpened at one end and driven down



Bracing the end post. *BAILEY*

with heavy maul eighteen inches or two feet. This is the practice in the famous Chatauqua grape district. Or the posts may be nine feet long and a post augur used for the holes, which should be three feet deep. Two, three or four wires are used, according to the system of training. No. 12 wire is a suitable size, except in the two-wire trellis,



when No. 10 wire should be used for the upper wire and No. 12 for the lower. Figs. 58, 59 and 60 show different ways of bracing the end post, upon which the heavy strain comes. Of these Fig. 59 is decidedly the

best. Either of the others will, however, be satisfactory where the rows are not too long. The posts should be set about twenty-five or thirty feet apart, two or three vines between the posts.

TRAINING.—Four systems of training are practised among vineyardists, each of which has its warm advocates :

1. The horizontal arm and spur system.
2. The Kniffen system.
3. The high renewal.
4. The fan.

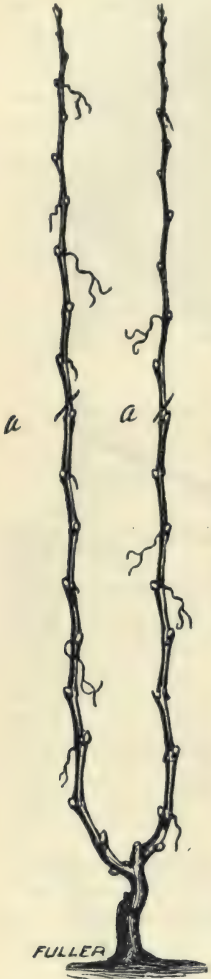


FIG 61



FIG. 62.

No hard and fast rules, however, can be laid down in this matter and various modifications of the many systems may be seen in all vineyards. "All intelligent pruning of the grape," says Bailey, "rests upon the fact that the fruit is borne in a few clusters near the base of the growing shoots of the season, and which spring from wood of last year's growth. A growing leafy branch of the grape vine is called a *shoot*; a ripened shoot is called a *cane*; a branch or trunk two or more years old is called an *arm*."



FIG 63 (FULLER)

The horizontal arm and spur method—called the *Fuller* system—is well suited for cold sections, where vines have to be laid down for the winter, and may be first dealt with. Fig. 61 represents the young vine at the end of the second season. The two canes are cut back at *a, a*, and bent down and covered for the winter, Fig. 62. In the spring the two arms are tied along the lower wire. A shoot will spring from each bud on

the canes, and at the end of the third season the vine will be as at Fig. 63. The vine is now pruned, the canes being cut back to a spur of two buds. As two bearing shoots will spring from each spur in the fourth season the arms may be slightly shortened so as to leave not more than five spurs on each arm. In the early summer any superfluous shoots that may have forced out from the trunk or arms, and all laterals or side shoots,



FIG. 64

which usually spring from the base of the regular shoot, should be removed and the ends of the main shoots should be pinched when the top wire is reached. At the end of the fourth summer there will be twenty canes, two from each spur. Every alternate cane will be cut off as close to the arm as possible, and the other cut back to a

THE HIGH RENEWAL SYSTEM.—In this system three wires are used, the lowest about eighteen inches or two feet from the ground and about the same distance between the wires. In the second season a single shoot or two shoots forming a Y trunk are tied to the wire, and in the third spring are tied along the wire, somewhat as

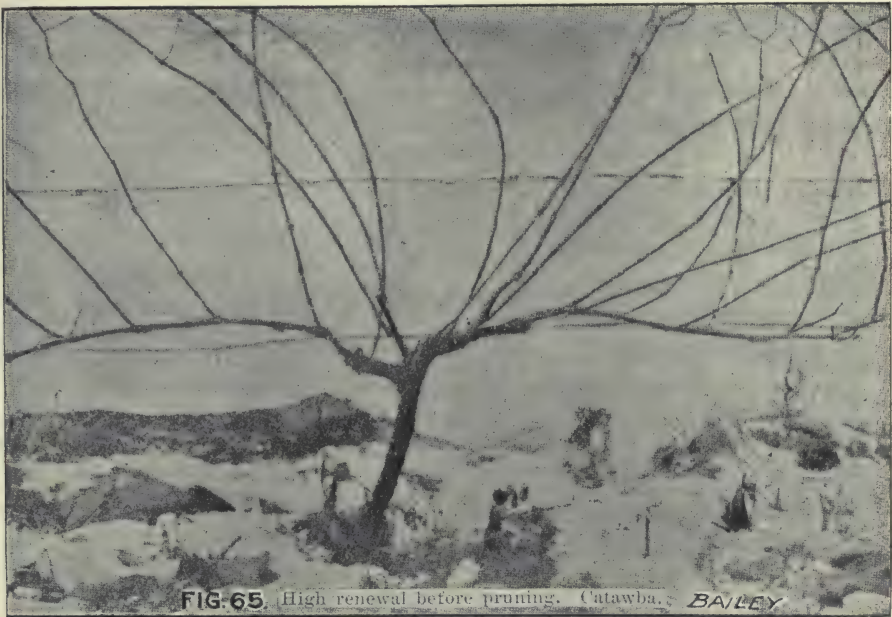


FIG. 65. High renewal before pruning. Catawba. BAILEY

spur of two buds—see Fig. 64. So that, as before, twenty bearing shoots will be provided for.

This, briefly, is a sketch of the horizontal arm and spur system. It necessitates more tying than other methods of training, but has many excellent features.

in the Fuller system. At the end of the third season the vine presents the appearance of Fig. 65. Instead of leaving two permanent arms and cutting back to spurs, as in the Fuller method, the old arms are cut away and two vigorous canes bent down. Two stubs, or long spurs, are also left, from which canes will be selected to form arms



FIG. 66 High renewal, pruned and tied.

BAILEY

for another year—see Fig. 66. There is thus, in this system, a constant renewal of all wood except the main stem or trunk. The number of buds (from which the fruit-bearing shoots come) left on a vine after pruning would be from 25 to 30.

THE KNIFFIN SYSTEM.—This is perhaps the most popular method of training the vine amongst commercial growers, and is a system which, with various modifications, will probably be generally adopted in all large vineyards. The advantages that it possesses are three—it permits a cheaper trellis, there being only two wires employed; it necessitates no summer tying, the shoots being allowed to hang free; and it affords greater facilities for cultivating the

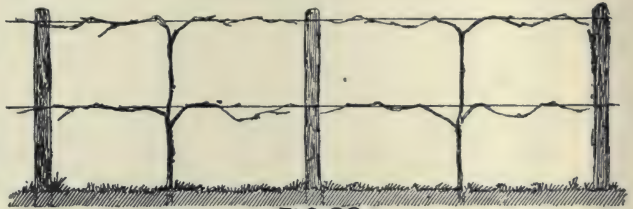


FIG 69

ground beneath the vine. All these things make for cheap production and, with present prices for grapes, cheapness of production has to be very earnestly considered. In the true Kniffin system two wires are used, the lower about three and a half feet from

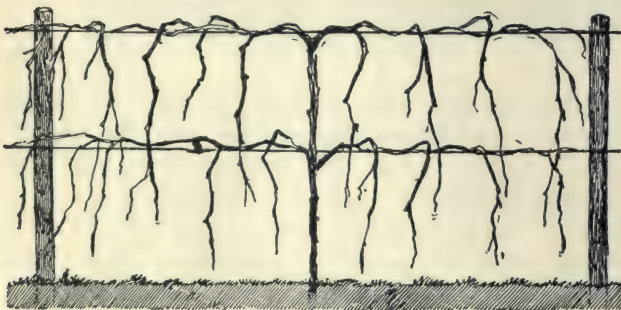


FIG 70

the ground, and the upper about five and a half feet. In the third spring a single strong cane is tied to the top wire and also to the lower. This cane will form the permanent trunk. At the end of the third season there will be eight or nine good canes on the main stem. Two of the upper ones are selected and cut

back to about eight buds each and tied to the wire. Two others, with five or six buds each, are tied along the lower wire, as in Fig. 69. At the end of the fourth season the vine will present the appearance in Fig. 70. The same process will then be repeated. Four strong canes will be selected and tied for the fifth season, as in Fig. 69. After a time the cutting back operation will leave a stubby, awkward lot of old wood where the horizontal canes start. It will then be wise to take, at the first opportunity, a shoot direct from the main stem and train it as an arm, cutting away all old wood that has gradually collected between the trunk and the horizontal canes. It will be noticed also that the Kniffin system simplifies pruning very much. There is no desire to urge here that the Kniffin system will give better re-



Fan-trained Concord. FIG. 67

sults than many other methods in operation. In many vineyards a combination of Kniffin and the Fan system is giving good results, but, properly managed, the Kniffin-trained vineyard will yield as well as any, and nobody can question its greater cheapness and the conveniences it presents. Success can be achieved with all systems, and in this matter of grape-training, there is lots of room for the expression of a man's individuality. The main things are—see that the vine is in a good thrifty condition; do not

allow an unnecessary accumulation of old wood; and let pruning be directed so that enough healthy last year's wood shall be left to produce the right number of bearing shoots this year. For one man who prunes too closely there are ten who leave too much wood. From twenty-five to forty healthy buds are ample.

Summer pruning need not be done except in the Fuller system, where some pinching in of the shoots is practised. With most systems, however, the vigorous growers, like *Brighton* and *Rogers*, will produce such immense shoots that cultivation is impeded. When they begin to get straggly and a nuisance, the ends can be trimmed off very quickly with a sharp sickle or corn knife. Importance should be attached to the early removal of superfluous shoots, and laterals or axillary branches. This operation does not take so very long, and is a true "thinning" process. These secondary shoots often bear one or two bunches, and second-class bunches at that. The vine will have enough fruit without them. The remaining fruit will be finer, and there will be a better lot of ripened canes to select from next year. As to the time of pruning: Any time through the winter where the vines can remain uncovered will be suitable. It is better to finish all pruning before the sap starts, though it is questionable if

the bleeding of the vine does much harm, and it is hardly necessary to say that it is a vast deal better to prune late than not at all.

THE FAN SYSTEM.—In this system, which is not much in vogue in recent days, the wood is renewed almost from the ground every year. An excessive amount of old wood and a trunk are thus dispensed with, and after fall pruning the vine is easily covered, where winter protection is needed. Fig 67, from Bailey's "Pruning Book," shows a vine trained in this way. With so

much growing wood close to the ground there will be more difficulty in keeping the fruit clean than where a higher system is adopted, and the tying is somewhat inconvenient.

MANURING.—The fertilising treatment accorded to the grape should be on as liberal scale as that given to other fruits. Where a big growth of wood is being made it is a sign that enough nitrogen is present in the soil. Additional barnyard manure is not necessary, and will in fact tend to promote



FIG.68. THE VINE PRUNED

an overgrowth and induce mildew. A heavy dressing of ashes, or muriate of potash will then give excellent results, the grape being one of the heaviest consumers of potash of all fruits.

VARIETIES.—A good list for the commercial grower is the following :

Black.—*Worden, Roger 4, Roger 44, Concord.*

Red.—*Wyoming Red, Roger 9 (Lindley), Delaware, Roger 15 (Agawam), Vergennes.*

White.—*Niagara, Moore's Diamond.*

Many varieties of grapes have imperfect blossoms, and where this occurs, other varieties of a self-fertile character should be

planted near. *Rogers 4, Salem, Brighton,* and *Rogers 9 (Lindley)*, will be unsatisfactory when planted alone. *Niagara* and *Delaware* have an abundance of pollen, and *Concord, Roger 15, Vergennes* and *Worden* will fruit satisfactorily alone.

List of varieties for home use :

Black.—*Moore's Early, Worden, Rogers 4 and 44.*

Red.—*Brighton, Lindley, Delaware, Salem.*

White.—*Niagara, Moore's Diamond.*

With respect to this list, it may be added that *Vergennes* is a good bearer, fair quality and excellent keeper, but it ripens too late for many sections. *Moore's Early*, although a good early black grape for the amateur, is not vigorous or productive enough for the commercial grower. *Wyoming Red* is early and prolific, but poor quality.

DISEASES.—Black Rot, Brown Rot, or Downy Mildew, Powdery Mildew, Yellow Leaf, Anthracnose, called Bird's-eye Rot when attacking the fruit are the more common. It would take too long in a brief practical treatise, such as this, to describe different diseases. Readers are referred for full information to Bulletin 92 of the Ontario Agl. College and to "Fungous Diseases of the Grape and other Plants," by Professor Lamson-Scribner. Yellow Leaf is a disease of comparatively recent origin and little is known of its nature. The bright yellow color of the foliage, the shrivelling of the berries and the dying condition of the vine readily indicate the trouble. It is advisable to uproot diseased vines and reset with healthy plants. Bordeaux mixture is the standard remedy for the rot and mildews. For the common form—the Powdery Mildew—ordin-

any flowers of sulphur will be as good or a better remedy than Bordeaux mixture. It can be dusted through and under the vines directly the leaves expand, and a second time when the grapes begin to form. The varieties chiefly subject to mildew are

Brighton, Rogers 44, Rogers 9, Salem and Agawam, but if the sulphuring is done early and thoroughly there will be no difficulty in growing a clean fine sample of these choice grapes.

St. Catharines.

M. BURRELL.

DISCUSSION ON VARIETIES OF FRUITS.

CROSBY.

Mr. McCollum inquired about this peach.

Mr. J. F. Hunt—I have fruited it in a small way for a number of years. It is a small peach with me, but extremely hardy. I think it is one of the best canning peaches, for flavor, but don't think much of it as a market peach.

Q.—Isn't it comparatively worthless as compared with the Crawford?

Mr. Willard—No, sir; I have fruited it for two seasons, and have been very much pleased with it in point of size and quality. Customers are pleased with it. I think soil and situation have a good deal to do with the development of good peaches.

Q. Isn't it too small for a market peach?

Mr. Willard—Not by any means; it is a good market peach.

Mr. E. Ashley Smith—I grew it this year, and the size was perfectly satisfactory.

Mr. King—I have fruited it, and it didn't prove satisfactory. The first fruiting was good size, but since that it has run small, even with close pruning.

Mr. Wood—We find that the older the tree the smaller the fruit. One thing in its favor is that it ripens in a season when we appreciate peaches.

Mr. Severn—The trouble is to get the right variety. If I had only known of the Crosby and had set my whole orchard to that variety, I should have been all right.

The Secretary—One firm, Lamming & Rudman, in the neighborhood of Rochester, sold their crop of Elbertas for over \$6,000.

A Member—I had Elberta and Crosby side by side; both grew well; but I like the Elberta full as well as the Crosby, and I think one Elberta would weigh as much as four of the Crosby.

Mr. Woodward—I agree with this gentleman. One basket of Elberta will sell for four times as much as Crosby, and you can raise four times as many.

A Member—Sixteen to one. (Laughter.)

CHAIRS' CHOICE.

Mr. B. J. Case asked after this peach.

Mr. Willard—There are some sections of the country where it is highly regarded and in demand. It does exceedingly well with me.

Mr. Pillow—It does better further south.

Mr. Willard—It originated south, but does well as far north as Sandusky, Ohio. Ripens about time of Late Crawford.

Mr. Barns—Mr. S. L. Quinby, of Marlborough, grew it, and says it is excellent. It bears well and looks well.

STEVENS.

Mr. Nelson Bogue—This peach is a seedling and originated on the grounds of the late Hon. R. S. Stevens, of Attica, N. Y. Fruit very handsome, nearly covered with a deep red, a little above medium size and ripens soon after the Early Crawford. Regular bearer, excellent shipper. Requires thinning. Tree very hardy and a strong grower.

DEACONESS.

Prof. Van Deman—Most of the fruit, I

have heard, has been either insignificant or worthless. I think the placing of this peach on the market one of the biggest frauds ever perpetrated in the state of New York. A firm of Ohio nurserymen worked this state last year selling what they labeled "Daniel Boone" and "Deaconess" peaches, warranted to be immune from yellows and to be very long-lived. I have heard of the Deaconess* being delivered on which the Elberta tag had not been taken off. There are a number of gentlemen present who have been skinned to the bone. They have whistled to the tune of several hundred dollars. I think there were five thousand sold near Geneva.

Mr. Ira Pease—They worked Oswego.

Mr. H. R. McNair—A friend of mine was induced to buy some, and has them planted. Would you advise pulling them up?

Mr. Willard—I would not. There might be some Elberta among them.

TRIUMPH.

Suggested by Mr. Pillow.

Mr. Willard—I have understood from those who have grown it that it is not sufficiently large to warrant it as an orchard fruit.

WILLARD.

Mr. Willard—Some of the best fruits are oftentimes in your own locality. I have a peach myself, and I induced the Maxwell's to plant some. Don't you think the Willard a good peach, Mr. Anderson.

Mr. Anderson—We had some doubt about it for a year or two, but I would gladly say that this last year it proved very fine; would be glad to recommend it to anyone. Its season is after Early Crawford.

NIAGARA.

Mr. Woodward—We have a peach which is, I understand, an accidental seedling of the Crawford. I wouldn't set a Crawford. You could not give them to me if I could get the peach I refer to. It is about one

picking later than Crawford; averages a good deal better, better color, better leaf, and holds its size to the end of the season. You can't sell any other tree in that section if the variety I speak of can be obtained. It is called the Niagara.

Prof. Van Deman—I have heard the Niagara spoken of in the highest terms. Those who have fruited it prefer it to any other, and I think it even better than Elberta or Early Crawford.

Mr. Dewane Bogue—I think the Niagara is the Newark seedling.

Mr. Woodward—There isn't any doubt about it. I know the man on whose land it originated. I happened to get "defrauded" by getting two or three hundred trees of that variety instead of Crawford. I never found any fault. A year ago last fall I supplied Dansville Sanitorium with peaches. They wrote me half a dozen times this last summer to know if I could not send them some more. They bore a nice crop, and the fruit holds right up to the end of the picking. The quality is superb.

MARKHAM.

Mr. J. A. Anderson asked about this peach.

Mr. Willard—It originated at Hart, Mich. In correspondence with the best fruit grower I know, he said: "You remember being with me on Mr. Markham's place? He has one of the best peaches I ever saw grown. It is called the 'Markham.'" He finally secured some buds and sent them to me, and I have a few trees. From this man's statement, up in northern Michigan, where they require a hardy peach, and from his reputation as a peach grower, I am inclined to think that it might be a good peach. I will tell you next year.

CHAMPION.

Dr. Chas. A. Ring inquired if anyone knew anything of this variety.

Mr. Barns—We have two trees. It is a very desirable early peach. It is white with slight carmine cheek, freestone, and without exception the finest-flavored peach I ever ate. It is a good cropper, with season about same as Mountain Rose.

Mr. J. W. Smith, Winona, Ont.—Hynes Surprise is one of the best white peaches we have. I like the Champion; got it from Ohio. Quality is superb.

Mr. Hunt—One of the best white peaches I have, and am more than pleased with it.

KALAMAZOO.

Mr. C. A. Goetzman mentioned this peach.

Mr. Willard—I like it very much. It is one of the best they have in Michigan. A hardy variety, that gave us some superior fruit last year. Yellow, large size, a little late, good handler, and commendable in every respect.

CRAWFORD.

Mr. T. H. King—Is the Crawford doing as well as formerly? It is not with us. We are putting the Brigdon in its place. It bears a larger crop and is fully as fine.

Mr. Willard Hopkins—Is it not a fact that Early Crawford is more liable than any other variety to the disease known as "little peach"?

Mr. B. J. Case—We haven't any that excels Early Crawford, unless it is the Elberta; but Early Crawford is our stand-by yet.

Mr. Hopkins—Out of an orchard of 800 trees, after the first or second crop, about 500 were affected with the "small peach" disease. Were they grown from the pits, or is it a disease, or how did it come? I cleaned the whole orchard out.

Prof. Van Deman—This disease is just now being investigated by Dr. Smith, of Washington. As yet nothing definite is known about the germ, and there is no remedy known.

Mr. King—We had a little of it, but not

so much last season as a year ago. The affected trees were given four pounds of nitrate of soda each, and they seemed partially to recover.

BECKWITH.

Mr. Pease—It is a late peach, of rich dark color. If properly grown and thinned it is a freestone, otherwise it is a cling. In quality is very rich, and bears freely, and the trees are very hardy, but do not know if it is grown anywhere but Oswego.

GREENSBORO.

Replying to an inquiry, Mr. McKay said Mr. Maxwell had some. It is extremely early, but not absolutely freestone.

Prof. Van Deman recommend the trying of the Greensboro and Sneed, both very early peaches.

WIARD AND SNOW'S FAVORITE.

Mr. Edward A. Powell—This peach, the Wiard, is a new, very handsome and promising peach. Another good one, originating in Syracuse, is the Snow's Favorite, which ripens about the same time as Crawford's Early. Larger in size, higher colored, very fine in quality, of excellent flavor, and I consider it very desirable.

Who has experience in spraying peaches?

Mr. W. T. Mann—I made a careful experiment of spraying on dormant wood four or five years ago, and the treatment was successful. Last year similar experiments were made, and while there was not a large amount of curl there was sufficient to show favorably for the treatment, and I think you can depend on it as a practical preventive of curl.

Mr. Hopkins—What time do you do your spraying?

Mr. Mann—Just before the buds open. We also sprayed on the foliage after they were out, but that was harmful. I would not dare to use it on the leaf. I think you should spray on the dormant wood before the buds open.

Mr. Willard—Mr. Morrill took the ground that he could do the spraying all at the time suggested by Mr. Mann, but he has been doing it all winter. The result was magnificent, for he had a most wonderful crop last season. He cultivates thoroughly.

In a drouth can we work the soil too much?

Prof. Van Deman—I know of a gentleman in Illinois who undertook to determine the point. He had a piece of corn between the barn and the adjoining fields, and he had the boys, every time they drove out in the morning and at dinner time, run right through these rows, so that they made four trips and covered that piece with the cultivator almost every day, and he said he never raised such a crop of corn.

Hrof. Van Deman—We know the peach crop was a failure last year, especially about Mr. Morrell's neighborhood in Michigan, with the exception of his orchard; he had cultivated and thinned and pruned so thoroughly that his trees were in such condition they went through the terrible February blizzard all right. He took in nearly \$35,000 off from fifty acres. He sold some peaches as high as \$7 a basket; any three of them would weigh two pounds.

Has anyone had experience in top-working Keiffer pear on the Bartlett or any other variety; if so, with what results?

Mr. Hooker—It grows readily on the Bartlett, but the Bartlett does not grow on the Keiffer. I don't know what pear will do well on the Keiffer.

Mr. Geo. T. Powell—Bosc will do all right on Keiffer.

Mr. Willard—There seems to be a lack of affinity between the Keiffer and certain other varieties. I have tried Winter Nelis, and it looks all right so far.

Is there any reasonable chance for profitable returns from the planting of nut trees, or for timber growth?

Mr. Woodward—We have a Paragon chestnut growing very nicely. If you get a dozen to grow out of a hundred you will be happy. It is about three times as large as the common sweet chestnut. After removing the film my taste is not good enough to tell one from the other. I believe there is a great future in growing black walnuts. I know of one tree that when I was a boy I dug up and took home, and now it is thirty-two inches in diameter. I believe there is profit not only in growing nuts but also nut trees.

Mr. Barns—We are making some experiments with chestnuts, but it is too early to show definite results.

Is the Champion quince of any value in this latitude?

Mr. W. H. Pillow—The Champion is all right, but it is too late here.

Winter Pears—What do members know about the Directeur Alphonse and the Dorset; are they desirable to grow for market? Name their weak points, and are there any better varieties?

Mr. Barry—We have been growing Directeur Alphonse for some years. It is a very handsome fruit. The tree is vigorous and a great bearer; but of course it is of too recent origin to state definitely its value. Dorset is large size, handsome, and good quality, valuable as a late pear and a good shipper. It is a question in regard to the introduction of new pears; you have so many already; but both of these are additions of considerable consequence.

What is the latest report regarding the Japan plum October Purple?

Mr. Willard—I have been disappointed in it. It bloomed well, but failed to set well. I do not regard it as a great acquisition and would not advocate planting it.

—Report W. N. Y. Hort. Soc.



TIMELY TOPICS FOR THE AMATEUR—VII.

SEPTEMBER is usually a time of uncertainty and uneasiness to those who have tender plants to care for, especially after the first week or two of the month has passed. Alternate periods of summer or chilly autumn weather, the mercury often rising or falling very rapidly in even a few hours, compels the plant lover to watch closely any indication of the approach of the first frost of autumn.

The change from summer heat to cold, even to freezing point, is often so sudden, that it is well to have the greenhouse and conservatory in readiness to receive the more tender plants early in September.

Plants in tubs or pots standing outside may be protected from early frosts by removing them to the shelter of a tree near at hand, a fence or building, or the more certain protection of a verandah. For beds of foliage or tender plants, a covering of cotton, or even a few newspapers, will often be sufficient protection to ward off slight frosts. The covering should be secured by means of stakes or wires, as close to the plant as possible without actually touching them. If the first few frosts of early autumn can be prevented from nipping foliage plants, they will often retain their rich coloring, and brighten

up the lawn and its surroundings, until the more gorgeous and resplendent tints of late autumn foliage appear to warn us to prepare for winter frost and storm.

Should any plants be unfortunately nipped by frost, keep them covered until the sun and heat of the following day has passed, as immediate exposure to sun and air is very disastrous to plants, even if only slightly frost-bitten. I have found this method of excluding light and air for a time from plants touched by frost, more successful in restoring them than syringing or plunging them in cold water. To be successful with either method, it is essential that frost-bitten plants under any circumstances, should at once have a gradually rising temperature to a few degrees above freezing point to recover in. This condition comes naturally during the increasing heat of the day, to plants exposed at night to early autumn frosts.

If you have a few choice tender plants, and feel doubtful whether there will be frost or not, it is always best to be on the safe side, and place them, if only for a single night, where they are safe. Many fine specimen plants have been ruined by leaving them outside just one night too long.



FIG. 1908. *COBÆA SCANDENS*, AT HAMILTON, NOV. 1899.

The trite old saying "Better be sure than sorry," should always be borne in mind and acted upon by horticulturists at all times, but more especially during the uncertain and changeable weather experienced during the early autumn.

THE GREENHOUSE.—See that the heating apparatus for this department is in good working order before heavy frosts commence, it might save your plants, and perhaps several nights of worry and watchfulness later on.

The cutting bed should be ready to commence propagating cuttings of geraniums, coleus and all perennial bedding plants, necessary to secure stock for next season's use. Coleus, achyranthes and ageratum cuttings more especially, should be secured before even the slightest frost has touched them, as it is very difficult to strike cuttings of these, or of any other plants, after being

exposed to cold, chilly weather. A few old plants of coleus and achyranthes may be lifted carefully from the beds or borders before being touched by frost, and potted in light loamy soil in four or five inch pots. These can be stood down on the floor of the greenhouse, where they will get a fair amount of light and sunshine during the winter. If watered carefully at the roots only, and placed where the drip from the bench does not bother them, they will often give a good supply of much needed cuttings during March and April, when perhaps cuttings from fall stock are hard to obtain. The third week in September as a rule, is early enough to take cuttings of geraniums, and the more hardy varieties of bedding plants.

Tender plants, such as stevias, abutilons, poinsettias, eupatoriums, bouvardias, etc., will require to be taken indoors before the first early frost, the poinsettias being

*Agave, Amer. Var.*FIG. 1909. DIERVILLA (*Weigelia*) ROSEA.

particularly susceptible to cold chilly weather. Freesias and Easter lilies started in pots outside, should be taken in before frost.

Agaves, palms, ficus elastica, azaleas, fuchsias, genistas, pelargoniums and other similar plants may be left outside until the weather gets cooler. Both varieties of the *Agave Americanus* will bear three or four degrees of frost for one night without injury, but it is not wise to risk them outside when the thermometer registers at freezing point, unless they are well protected.

Cinerarias, herbaceous caleolarias and cyclamens, may be left out in cold frames for perhaps a few weeks, but the sash should be placed over them on cold nights. Re-pot these plants into larger pots as required. Gloxinia bulbs out of flower should be gradually dried off. Re-pot old corms or bulbs of cyclamen.

Chrysanthemums grown in pots or planted outside, should be taken in about the middle of the month. Although most varieties of those useful plants are almost or quite hardy, a few degrees of frost will materially injure the flower buds, as well as induce an attack of mildew that will mar the beauty of both flower and foliage. Extremes of either heat, cold, dryness or moisture induces mildew, and should therefore be avoided as much as possible in growing these lovely autumn and winter flowers. If large flowers are required, disbudding will have to be attended to every day or two during the next few weeks. This is done by pinching off with the thumb nail and finger, or removing with a pair of scissors, all the small lateral buds, leaving only one or two perfect crown or terminal buds near the top of each branch or stem of the plant. A little liquid manure will help to

swell the buds during this period. Give the plants plenty of water, as the foliage of chrysanths, especially at this stage, should never be allowed to wither and droop. A light shading for these, and all lifted or repotted plants, will still be found beneficial. Syringing early in the morning will also help to keep the foliage bright and fresh looking.

Carnations planted out in the borders, should be either potted or planted on the benches early in the month; syringe daily to keep down red spider. Bench roses will require plenty of water and regular daily syringing with tepid water, early morning will probably be the best time for this operation. Tea roses in pots that have been resting, should be pruned back as required, and repotted firmly into good, rich, clay loam soil. Hybrid perpetual roses grown in pots for winter flowering can be left a month later before being repotted, as a slight frost or two is beneficial to harden the wood of these before being taken indoors.

Young bushy plants of antirrhinums, (*snap dragons*) and ageratums, etc., if lifted and potted carefully, will often give a supply of bloom during a great part of the winter. Double white allysum plants cut back, and potted three or four in four inch pots, are also useful for this purpose, and will furnish an abundant supply of cuttings as well, early in the spring.

If petunias, heliotropes and similar quick growing plants are wanted from the beds or borders, cut them back a week or two before taking them up, and give very little root room for a time.

Geraniums grown in pots (as recommended in May number of Horticulturist, page 201) for winter flowering, should be taken indoors toward the end of the month and allowed to flower.

Close ventilators early in the afternoon, and keep the floors well dampened. A little fire heat may be necessary toward the end of the month, especially for bench roses and

tender plants. Paint the hot water or steam pipes in the greenhouse with flour of sulphur well mixed in water, it will prevent and keep down mildew.

WINDOW PLANTS.—The beautiful annual climbers that are used with such pleasing effect around and about windows and verandahs in summer, will soon lose their brightness and show signs of approaching cold weather. These can, however, by a little care and attention, often be made to look quite fresh and attractive long after the flower beds have been dimmed or blackened by the first frosts of autumn. The accompanying photo, Fig. 1908, taken in Nov., 1899, showing the beautiful Mexican climber, *cobea scandens*, with its profuse, delicate foliage and tendrils, and its large purple campanula shaped flowers still fresh and vigorous, proves that even the slight protection of an open verandah will prolong the beauty of the most tender plants almost into the winter months. Many methods of temporary protection to plants of similar character, will suggest themselves to those who wish to prolong the summer beauty of their pet window plants and climbers. *Cobea scandens* is especially useful as a summer climber.

A few plants of lobelia, white alyssum, etc., may be potted up from the borders to brighten up the windows until the early winter flowering bulbs commence to bloom. Later on, before the boxes are emptied, some plants of the variegated vincas (*periwinkle*) tradescantias, isolepsis, *Festuca glauca*, *æthonna crassifolia*, etc., may be potted; these will help to fill up the window and furnish a supply for next season's use. A few cuttings of German ivy or the perennial *tropæolums* can be struck in pots in sand, and when rooted, grown on in hanging pots or baskets for the window in winter. The old fashioned, but pretty and graceful looking trailing plant, *saxifraga sarmentosa*, known perhaps better by its numerous local names, such as "mother of thousands," "creeping

sailor," etc., makes a very pretty, effective and easily grown plant for a hanging pot or basket. A nicely grown specimen of this plant, especially when in flower in summer, has a pleasing appearance suspended in a window. *Othronna crassifolia* succeeds best in a hanging pot or basket in winter.

Roman hyacinths bulbs may be potted two or three in a four inch pot at intervals of a week or two. By potting a few bulbs at a time at intervals, a succession of these useful and fragrant flowers can be had from October until April if required. For culture, see page 456, November, 1899, Canadian Horticulturist. Cuttings of geraniums, etc., can also be taken as recommended in the above mentioned number of this journal.

Avoid using larger pots than is necessary for wintering plants in; over potting, especially in winter, has proved fatal to many a pet plant. Use plenty of drainage when potting plants for winter effect. Water thoroughly all plants when water is required. Commence operations against insect pests early. Prevention is better than cure.

FLOWER GARDEN.—Asters and other late flowering annuals will be at their best during this month. A little weak liquid manure once or twice a week will help the dahlias, if the plants are not robust and strong.

German iris and pæonies may be divided and planted out toward the end of the month or early in October, as the rush of spring work often prevents these from being planted out early enough in spring to give flowering results the same season. A light mulch, applied late in the season will help the pæonies through the winter.

Japanese lilies growing in the open border should still be making a showy display early in the month. I prefer planting these valuable bulbs inside in large 7 or 8 inch pots, and plunge pot and all outside in the open ground, in slight shade if possible, about the end of May. The pots can then be lifted into the house if the plants are in

flower when the first frosts arrive, as is often the case. *Lilium auratum*, *L. rubrum*, *L. speciosum album* and many other varieties of these gorgeous Eastern lilies can be had in flower in this way until quite late in the autumn. If the bulbs are properly cared for and given their proper resting period they will still be useful for planting out permanently in the open border and give good results. Flowering shrubs and perennials have given grand flowering results this summer, many of them continuing in flower almost the whole of the summer. Amongst perennials the campanula persicifolia alba and the numerous varieties of herbaceous phlox have flowered very well indeed. The accompanying photo of *Diervilla* or *weigela rosea*, Fig. 1909, shows one of these beautiful shrubs in full flower in early June. At this date (August) there are several fine sprays of bloom on this plant.

FRUIT GARDEN.—Gathering in the early autumn fruits will be the principal operation in the fruit garden during this month. Fruit picking is often very carelessly done; too much care can hardly be devoted to this operation. It is very little use to devote a lot of time and attention in pruning, cultivating, and spraying fruit trees, and then lose 50 per cent. of the fruit, as it often the case, by careless handling at picking time. Handle fruit carefully and as little as possible.

Daily pickings of fruit, especially peaches, apricots, nectarines, and even plums, is advisable. A little practice will soon enable the close observer the proper time to start fruit picking and supply the table with luscious, healthful fruit from the garden. A dish of fruit from your own fruit trees, carefully handled so as to preserve the natural bloom, will be more pleasing to the eye, as well as tempting to the appetite, than a whole basketful of fruit would be, with the natural bloom all smeared and smudged, to say nothing perhaps of bruises from careless handling. It is pleasing to

note the interest that is being taken by commercial fruit growers and the great advance made in this direction of recent years, so as to place our delicious Canadian fruits before the consumers in the best possible condition.

In arranging compartments of fruit for the table, a few bright colored, perfectly shaped leaves, taken if possible from the same trees as the fruit, and placed around and about it, will show the fruit off to the best possible advantage. Autumn tinted maple leaves, or the leaves, or even the long trailing shoots of the *Ampelopsis Veitchii*, are very pretty and effective for this purpose.

VEGETABLE GARDEN.—Make a sowing or two of spinach for early winter and spring use, one sowing early in the month, and another about two weeks later. The prickly seeded Spinach is the hardiest variety, but the Round Summer is much used for autumn sowing, and often come through the winter almost as soon as the prickly seeded variety. The latter is not considered to be as tender eating or as nice flavored as the summer varieties.

Onions will be about ready to harvest now; see that they are thoroughly dried before storing. Do not leave them too long on the ground when growth is completed, as they soon commence to grow again after reaching maturity, especially during wet weather, if they are not pulled from the ground. Store them in a dry, cool place, with a temperature

only a few degrees above freezing if possible. Keep the bulbs dry and cool, is the best secret in storing onions to keep well until spring.

Celery will require watering if dry weather prevails, and earthing up a little as growth progresses. Celery can be blanched by wrapping a thick sheet of coarse paper once or twice around each head, and fastening with a piece of twine. Long clean straw, or short pieces of board placed and fastened close up on each side of the celery will answer the same purpose. The wrapping process is probably the simplest and easiest, where small quantities of this useful and healthful vegetable is used.

Beet roots must be stored, or at least pulled and protected temporarily, before severe frosts; handle carefully so as not to bruise them; leave the roots intact, and a few inches of the tops on the beet, as trimming either of these too closely detracts from the color and flavor, as well as causing the roots to rot early in the winter.

Cut all vegetable marrows that are ready for use before frost. These will keep several weeks if placed in a fairly dry cool place. Carrots, parsnips and salsify may be left in the ground till later. A few roots of the two last named may be left in the ground all winter; they are much nicer eating in the spring than those that have been wintered in cellars or root houses.

HORTUS.

Hamilton.

THE AMARYLLIS.—Those who love a gorgeously-colored flower should try the *amaryllis johnsonii*. Truly, it is a queen among lilies. A year ago I purchased a bulb and planted it in a large jardiniere filled with rich soil. It soon sent up five stately leaves several feet in length, then a large flower-stalk from which soon developed

three large, drooping, bell-shaped flowers. The petals had the appearance of rich red velvet with a white satin stripe down the center. Words fail to give an idea of its loveliness. Many persons seeing it in the window came in to know the name of this rare plant, and to admire its wondrous beauty.—*Park's Floral Magazine*.

PREPARING PLANTS FOR WINTER.

I would never advise putting the plants intended for winter use in the open ground in summer, for these reasons: The growth of the season must largely be sacrificed in the fall, when the plant is lifted and potted. This operation checks it severely, and in consequence the plant is in a weakened condition at the very time when it ought to be strongest and most vigorous. The change from out to indoor conditions is always a trying one to a plant, therefore it needs all possible strength to take it through the ordeal. If it lacks vitality when taken into the house, it naturally follows that what vitality it has must be greatly lowered by the depressing conditions it has to meet, and the result is that if it survives the strain put upon it it takes it nearly all winter to get well established, or to recuperate, and while this is being done it cannot be expected to produce flowers. By the time it gets fairly to growing spring has come, and the winter's experience has been a most discouraging one to the amateur. Therefore, the importance of having two sets of plants will be readily apparent to the thoughtful reader; one to bloom in summer, the other to be held in reserve for winter work. The same plants cannot be made to do duty during both seasons. I make it a practice to grow young, strong, vigorous plants each summer for the coming winter, and the older plants, those which have passed their prime, are allowed to bloom to suit themselves throughout the summer, and are then thrown aside. But good plants do not outlive their usefulness in one season. If they are cut back well each spring and kept as quiet as possible until September, they can be carried through several seasons and will be found more satisfactory when two and three years old than when but one year old. This is especially true of the geraniums. I know that young plants are often advised; and some

writers say old plants are worthless. These persons do not know what they are talking about when they say this. I never expect a geranium to show what it is capable of doing before its second year, and the third year it will be more satisfactory if one has room enough for large plants such as old geraniums will be when properly grown. I have in my greenhouse geraniums over six years old, and they are as healthy and vigorous as new plants and have a score of flower-trusses when the young plants have one. Visitors often ask me if they are not rare kinds. They had supposed that these plants were worthless after the first year, and are surprised to find how far superior they become with age to the ordinary small plants.

If young plants of any kind are to be grown from cuttings for winter use, they should be started early in the season. Get them to growing, if possible, in March or April. Heliotropes, Begonias, Ferns—in fact all plants except such as are grown from seed—must have this early start if one wants plants of good size. Late started plants will be more intent on producing branches than on flowering, for they will not have reached that maturity which they must attain before they get down to the serious work of life. Roses should be cut back until October. Then let them grow all they will. The new growth will always bear blossoms if strong and healthy. Geraniums should have all buds removed up to the time of bringing the plants into the house. Then let them begin to flower, but remove some of the buds that form, thus holding the plants somewhat in reserve for the season when flowers will be more appreciated. Carnations seldom begin to flower much before late fall, therefore some of the first crop of buds can be allowed to develop.

E. E. REXFORD,
in *How to Grow Flowers*.

CARE AND CULTURE OF CACTI.

MOST people who admire a well-grown Cactus in some other person's collection would like to have some themselves if they

thought they would be able to give the plants the proper care to produce the best results. The writer has found also a widespread belief that a cactus must be about seven years old before it will bloom, and the thought of that long wait is enough to deter a great many from possessing any of this most interesting species of plant life. Some ladies have persevered and patiently went through the term of waiting, in the hopes of having at last the long coveted bloom, and under their treatment it has perhaps taken the required number of years to comply with the tradition. But in the writer's experience this idea has been entirely exploded. Very small specimens of some varieties, which have only been rooted and grown for one and two years have cheerfully contributed their quota of beautiful waxy flowers. It is true that some species are extremely shy bloomers, and very large plants have been kept for years without ever rewarding the owner with a blossom, and to the flower lover who only prizes the plant for its bloom this is a serious drawback. To a collector of cacti, who sees sufficient beauty in the diversity of spines, shapes, growth and other features, to prize a specimen for its own sake, even if bloom is scarce, this does not matter. A few suggestions as to care along the lines that have been most successful in the writer's case may be of interest. One peculiarity that is common to all kinds of cacti, is that the plant that is given the best care and most elaborate treatment, almost invariably rewards the owner by dying. They will not stand forcing; for although if fed on plant food they will flourish for a while, the final

result is almost sure to be disaster. So then it seems that neglect is a better plan to follow, and one need only consider the conditions in which cacti grow in their native home, to realize that this is what they are used to, and what nature has fitted them for. In clear, hot sand beds, where nothing else can live, there will be found some varieties of cacti, covered in their season with their fine flowers, and flourishing under these apparently adverse conditions. How then are we to make conditions resemble nature in our house treatment of cacti? Supposing one has a lot of cuttings of different kinds with which they wish to make a start towards a small cactus collection, a simple way to start them in a south window or conservatory is to make a shallow box about three inches deep and fill it with nothing but very coarse sand, the coarser the better, set the slips in this just far enough to be held firmly, and then after moistening the sand it would be just as well to forget the box for a week before again watering. Never keep the sand very wet or the cutting will rot off, but by giving them a little of the neglect which they naturally expect, growth will very soon appear, when the plants may be separately potted. In potting them care must be taken to have the drainage perfect. Fill in the bottom of the pot with broken crockery, stones or mortar, and on this just a layer of soil, composed of one-third garden soil and two-thirds coarse sand. Leave a hollow space in the center of the pot large enough to set the plant in, and in this put the plant, in clear sand, filling up the pot to the required depth with the sand only. This allows the roots to extend into a little heavier soil when the plant requires a little more nourishment, and the plant itself rests on the sand, which seems to suit it best. For a large window box a nice effect can be

secured by having a variety of kinds and arranging them so as to contrast the colors of the spines in any desired way, and putting a layer of sandy soil in the bottom and setting the plants in two or three inches of clear, coarse sand.

In this paper a general talk is given on culture at the outset of a cactus collection, and in some later issues special varieties will be taken up and described, with the particular treatment that they require.

Woodstock, Ont. J. H. CALLANDER.

RHYNCHOSPERMUM JASMINOIDES.

THIS pretty little trailing greenhouse shrub, that certainly does not deserve to have such a cruelly long and almost unpronounceable name attached to it, is a native of eastern lands, being found in India, China, Japan and adjacent countries. It was introduced into England from Shanghai,

all the attention it requires besides watering. I find the best time to repot this plant is early in the Spring, as soon as it shows the first signs of bursting its buds, to produce flowering growth. Keep it in the greenhouse from early in September until after it has done flowering in June, when it can be stood on the north side of a fence or building on coal ashes all the summer. This will prevent worms getting into the pot. Perfect drainage is very essential in growing this plant successfully. It requires very little water during summer, but must not be allowed to dry out completely.

The deliciously soft but powerful jasmine fragrance of its ivory white star-like flowers that it produces in such profusion in early summer, will especially endear it to all flower lovers from the old land, and awaken fond memories of the old jasmine-covered rustic porches, that add so much to the quiet, peaceful beauty of cottage homes, especially in the south and west of England; and around which perhaps many of our readers have spent many happy hours of their childhood and youth. Even a small plant of this fragrant greenhouse shrub when in flower will perfume a large dwelling house completely.

The accompanying photo of a small plant about seven years old from a cutting, will give some idea of the appearance of this eastern shrub when in flower, a plant of which should be in every collection of greenhouse plants, its flower being very useful for button-hole bouquets, etc., in spring and early summer.

HORTUS.

Hamilton.



FIG. 1910. *RHYNCHOSPERMUM JASMINOIDES.*

China, about half a century ago. As a greenhouse plant it is easy to grow, requiring very little care and attention; but like most of the hardwood greenhouse plants it is slow growing. Repotting into fairly rich, light loamy potting soil, with perhaps a little leaf soil or peat mixed with it, is about



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.
SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

ERRATA, PAGE 345, "Our Watering," should read "Over Watering. Page 348, "Bench Roses" should read "Bunch Roses."

THE WONDERFULLY FINE PROSPECT for apples will be much lessened by dropping and worms. Western New York and Southern Ontario give excellent promise.

OUR FRUIT AT PARIS seems to have attracted considerable attention. Five first prizes have been awarded us. The fruit was shipped on steamer Parisian to Liverpool in cold storage.

THE TRIUMPH PEACH is promising to be very popular in Ontario. Growers in the Niagara district think its time of ripening, closely following Alexander, its yellow color, its free stone, all conspire to make it the

most popular peach of its season. Fault is found with it by others on account of its furry coat and its toughness of skin, while the tree they say is much subject to blight, especially after a season of a heavy crop.

MR. R. B. WHYTE, Director at Ottawa, seems to be one of the chief prize winners at the Horticultural show at Ottawa on the 17th of July, both for fruits and flowers, judging from the report in the Ottawa Citizen.

SEEDLING GOOSEBERRIES, from C. L. Stephens, Orillia, received 26th July, 1900, all from four year old plants. No. 1, Seedling of Industry, picked 20th July, much resembles its parent in color and form, but from branch received would appear to be much more productive. No. 2, also Seedling of Industry, green in color, quite soft

when received. No. 3, Chance Seedling, green, apparently of little value, though larger than Downing, its supposed parent. No. 6, Chance Seedling, possibly of pearl yellow, larger than Pearl of good quality.

MILLIONS OF BASKETS of Elberta peaches are being harvested in Georgia. Daily shipments over the Central R.R. of Georgia, fill about eighty cars per day, along the line of which road there are over 1,200,000 bearing peach trees.

THE SNEED PEACH ripened at Grimsby on the 24th of July. The whole crop was shipped by the 26th. It is an early variety indeed, but you can say little more in its favor. It is very soft, a cling, and has very little flavor.

AN EXTRA DOUBLE TUBEROUS BEGONIA comes from Mr. R. Cameron, of Niagara Falls. This flower is composed of many double flowers in one. It is also very shapely, like a ball, and the size of a baseball, and of a rich color and splendid substance.

THE LEADING ROSARIAN OF CANADA, Mr. Henry Dale, of Brampton, passed away July 15th. At twelve years of age Mr. Dale came from England to Brampton, becoming in 1870 a partner, and in 1881 starting business for himself, in marketing, gardening and rose-growing, a business which grew until he had 200,000 feet of glass and a national reputation. He was just building six new houses, two of them 840 feet long.

THE FARMER'S INSTITUTE of Ontario, Fruit Growers' and other Associations, have united in making a special gift to Dr. Mills in recognition of the magnificent work he has done for the country at the Ontario Agricultural College. This gift has enabled Dr. Mills to take a holiday in Europe, a rest

from his severe duties which he sadly needs in order to recuperate his worn out energies. The public presentation will be made on his return.

THE MIDSUMMER SHOW of the London Horticultural Society was held in the City Hall on the 7th and 8th August. Hours 1.30 to 10.30 each day. The exhibit consisted of flowers and decorative plants; there was no entrance fee. In another column there appears some account of this exhibition, which was a great success.

THE ENGLISH APPLE CROP for 1900 is of unusually fine quality and very abundant, according to the report given in the Gardeners' Chronicle. The pear crop is a good average, though considerably better than in 1899. It is evident, therefore, that we must ship only our finest fruit, graded to uniform size and color, if we would receive satisfactory returns. It is far better to leave small and gnarly samples on the tree to waste than to spend the time gathering them and sorting them. In the end they may be gathered for cider, after the best are disposed of. Germany will probably take a good many of our red apples, if we may judge from the following lines, written by Aug. Stier to The Fruitman's Guide London :

Hamburg, July 30.—With reference to our Hamburg market for American and Canadian apples, I beg to inform you that special red-colored fruit, Baldwins, Ben Davis, Kings, Seeks, etc., are very much liked, while green apples in larger quantities are not so much wanted—medium size apples are preferred to large ones.

We have a large crop of apples in our country, but consisting nearly fully of cooking apples, we can surely do with large quantities of good colored American fruit. Doubtless prices will not be high this season on account of probable heavy arrivals.

Hamburg, Aug. 1.—Referring to my last of the 30th ult., you will no doubt be aware of the enormous crops of apples in the United States and Canada, and the probability of heavy exports to Europe. I repeat, we have a big crop in Germany, but ours are all cooking sorts. We have no table fruit at all, and there is every prospect of a strong demand for American and Canadian apples with us.

QUESTION DRAWER.

Sowing Seed of Ginseng.

1173. SIR,—Will any member of your Association tell me why my Ginseng seed does not grow. A year ago I planted fifty seeds in a box 2 feet 6 inches long by 1 foot wide, with 8 inches of good soil. I put 8 inches of good soil in it, put the box next the fence, banked earth around it and planted the seed about one inch deep. I covered the box with a fine wire screen to keep out the mice, and kept it moist last summer by sprinkling. This year I expected young plants but not one has appeared.

Clinton.

THOS. HOLLAWAY.

We have referred our inquirer to Mr. Harlan P. Kelsey, of Boston, Mass., who is the chief dealer in Ginseng in America, who has replied as follows :

I think your subscriber probably let the Ginseng dry out at some time, and he did not plant it properly in any case. There should have been at least 18 inches of good soil beneath the seeds, and the box should have been sunk to the level of the surrounding earth, instead of having banked up around it. Again, probably the seed was not good. This can be ascertained by cutting through the seed as one would cut through a cucumber or squash seed.

The best way is to put the seeds in layers as soon as collected, with sand or soil between in beds, and put in the open air. Plant out in large boxes sunk to the level in the soil with netting roller to keep it moist.

Again, the seed may have been a little too dry, and in this case they would not come up till next spring. But he can find out if they are good by testing as above.

Orchard Cultivation.

1074. SIR,—I was much interested in the able and lucid address given at the convention of the Fruit Growers' Association by Mr. Powell, of Ghent, especially that portion which treats of the ploughing under of clovers. He makes every point very clear, except one, which is not spoken of, and that is this: It is generally the custom to plough towards the trees in the autumn and away from them in the spring, or at any rate, to work the soil away in the spring with the disc harrow. I understand that he advocates ploughing, and in

the early spring, and doing the rest of the work with the cultivator. Now, my question is, "Is it not helpful to the trees to plough towards them before the winter. Is it not almost necessary in this latitude?" And, again, would he recommend ploughing towards and from the trees alternate years, or in your opinion, if the soil were thrown towards the trees every year, would cultivating and crosscultivating level the ground sufficiently? I am much interested in the clover question and should feel obliged if you would kindly answer in the next issue of your paper.

Yours truly

Woodside, Beamsville.

A. H. WANE.

In relation to cultivation of orchards, in all well drained land, it is better to keep the ground level. Cultivation sends the roots down, hence there is no danger in ploughing the soil away from them one year and towards them the next.

There is no need of deep ploughing near the trees, just enough to break up the soil and keep it stirred. Let the deeper ploughing be done outside, which keeps roots down deep, where they obtain more moisture and are safe from frost for that reason.

I believe in setting trees deeper and depend more on the lower roots; surface roots are more liable to injury from cultivation, from drouth, and from frost, hence deeper planting and getting the root system deeper in the soil will give us better trees and better results in every way.

This, with early and frequent cultivation, and then covering the land later with clover for winter protection and for improving the soil, has given me great satisfaction. For full bearing orchards this treatment gives fine quality and regular bearing.

For young growing trees this plan would have to be modified somewhat, but where small fruit culture is carried on between the trees for a few years, such as currants and raspberries, the plan will work with equally good results.

GEO. T. POWELL.

Briar Cliff Manor, N. Y.

Spraying For Thrip.

1175. SIR,—Can you inform me the best solution for spraying indoor grapes? Last year my grape vines were almost ruined by "thrip," and am afraid they will be so again. I have been spraying them with cold water in the evenings. I have a fine lot of the fruit, and it is on the new wood. You will very much oblige me.

Yours very truly,

Cobourg,

JOHN HAYDEN.

We have had good success spraying outdoor roses for thrip with Gillet's lye. We applied it with Mitchell's hand sprayer, a sort of atomizer, which throws an exceedingly fine vapor. We used a pound to five gallons of water, but found that this was injurious to the leaves. We would only use half a pound to ten gallons next time, and then spray in very fine mist. Most people use less coarse a spray. We would expect this same material useful in the case of greenhouse grape vines affected with thrip.

We would also suggest trying the application of dry insect powder, and leaving all doors and windows closed, or the house might be fumigated with dry insect powder, a thing that has been found effective in clearing out mosquitos from houses or tents.

Apples for Prince Edward Island.

1176. SIR,—Taking fruit and tree of Ben Davis as a standard of comparison for shipping to Great Britain in winter, in early bearing, hardiness, vigor, productiveness, freedom from spot or rust, color, etc., what would you say in favor of Ontario, Gano, Stark, York Imperial, Sutton Beauty, Cranberry Pippin?

NOVICE.

Georgetown, Prince Edward Island.

As Dominion Superintendent of Horticulture at the World's Fair, Chicago, the writer had much experience with apples from all sections of the United States and Canada, and one conclusion was forced upon him, viz., the great variation in the same apple under different conditions. The Western Ben Davis was a magnificent apple, the best apple for the commercial orchard in certain States, the Baldwin of Western New York is proverbial, the Spy in On-

tario cannot be excelled by any other apple, nor the Newtown Pippin of the Alleghany mountains of Northern Pennsylvania. In certain parts of Ontario the Ontario apple is a magnificent success, far superior to the Ben Davis; in others, as for example in the Niagara District, the Cranberry Pippin is a finer selling apple than the Ben Davis, although not by any means so regularly productive. At Trenton the Stark is grown extensively and counted one of the best commercial apples. York Imperial and Gano are reported to be very successful in the Middle States, and Sutton Beauty in New York State. But so far as we know the various apples have never been fairly tried or reported upon in Prince Edward Island, and varieties which are very superior in other places to Ben Davis might prove a great failure in P. E. Island.

Apple Blight.

1177. I would like to ask if you can suggest any preventive for "apple blight," which has been very severely felt here this season and last. I put on a number of grafts last spring with the very best results, but they are nearly all killed. In common with other sufferers here I would be very glad to know the cause, and if there is any means of combatting it.

Ottawa.

A. H. TAYLOR.

No remedy is known for apple or pear blight. It is very injurious some seasons on certain varieties, and then again of quite rare occurrence. Some advise cutting off and burning all affected branches, but this is not always effective.

Pruning and Planting Evergreens.

1178. When is the right time to prune evergreens, especially Norway Spruce and Cedars? And can those trees be successfully planted after the season's growth is over, or in midsummer?

Brockville.

I. RICHARDS.

Evergreens may be pruned at any time of the year, as there is no time when they are leafless.

Transplanting of evergreens is best done when the trees are dormant, or just before or just after the summer growth. The

month of June is usually considered an excellent time, unless the transplanting is followed by very dry weather, which is more trying upon evergreens than on other trees.

The Malarial Mosquito.

1179. SIR,—There was an exceedingly interesting article recently in the Scientific American by Dr. H. O. Howard, of Washington, upon the distinctive features of the Malarial and Non-Malarial Mosquito (*Culex pungens*) and (*Anopheles quadrimaculatus*). I don't suppose, however, "*Anopheles Quad*" are Canadian inhabitants.

A READER.

REPLY BY DR. FLETCHER.

The distinctive features of the Malaria Mosquito, as distinguished from the species of *Culex*, is the comparatively greater length of the palpi, the small processes which are found at the base of the proboscis. There is also a characteristic attitude when at rest. In the ordinary Mosquito *Culex* the legs are raised above the back, sweeping upwards, while in *Gnophes* they droop beneath the body. When at rest *Culex* holds its body parallel with the surface it is resting on, while *Anopheles* has the body at almost right angles, as if attached by the tip of the beak.

The Caprifig Insect.

1180. SIR,—I would like to know if any attempt has been made to cultivate the Fig in the Niagara District. I suppose, however, this can only be done under glass? Where can I find the

name of the insect imported from Southern Europe into California for the purpose of fertilizing the fig and increasing its size and production, and an account of it.

REPLY BY DR. FLETCHER, OTTAWA.

The insect imported from Europe into California for the purpose of fertilizing the fig and increasing its size is named *Blastophaga Grossorum*, or more generally the Caprifig insect.

North American Cricket.

1181. SIR,—Give some account of the North American Cricket, and if injurious to cereal crops in the same way as the Locust and Grasshopper?

REPLY BY DR. FLETCHER.

I do not know what species should be called distinctively the North American Cricket, for there are several kinds. Possibly *Gryllus Neglectus* is meant. This is a large black species which is commonly found under logs, but is also frequently seen hopping about in hot weather. I have never known it injurious to cereal crops although it consumes a considerable amount of vegetable matter. Its range of food is very varied, consisting about equally of animal and vegetable substances.

All of these questions could have been more suitably sent to an entomological or natural history publication, where they could have been answered more fully.

MR. E. L. GOODSSELL, of New York, has been abroad studying the apple market, and writes as follows in the New York Fruitman's Guide, on the apple market :

The apple crops of both Germany and England promise to be about the largest on record. But the quality is by no means commensurate with the quantity. Both countries have been sufferers from continued heat and drought, and as a result the apples, plentiful as they are, will be so small

and poor as to be unimportant factors in the market. As a result American apple shippers must bear in mind that they will win in the competition by force of sheer quality and quality alone, and accordingly they must be careful to send apples of only the best quality or size; otherwise they will get their fingers badly burned. It is believed that good apples will sell well in England and Germany, and will meet a large demand, especially in view of the country's recent favorable action in the matter of duties on American fruits.

Open Letters.

The Apple Crop of 1900.

Messrs. Simons, Shuttleworth & Co., of Liverpool, write as follows regarding the current season's apple crop:

SIR,—Following our usual custom at this time of the year, we now beg to put before shippers our estimate of this year's crop, as gathered by representatives, who have just finished their travels through the apple growing districts of America and Europe.

It appears unnecessary for us to put this information into an extended report. Taking America as a whole, the present indications are for a record crop of good quality, not excepting the phenomenal one of 1896. In saying this it must not be understood that there are no sections where apples are light and quality poor; there are spots where these conditions exist. The crop in Great Britain and on the Continent of Europe is also very large and of good quality. On both continents some varieties of fruit, where trees are heavily loaded, will be undersized, but otherwise clean and bright, particularly so where cultivation and spraying have been properly done.

The problem presenting itself for solution, therefore, is, "How can this large crop of apples be marketed to the best advantage?" The law of supply and demand ought to regulate prices every season, although as a matter of fact, from a shipper's standpoint, it rarely does. In view of this year's crop prices must necessarily rule correspondingly low.

While advising the utmost caution on the part of intending shippers, yet, owing to the superior quality of the American and Canadian product, we believe there will be times when large supplies of good, well-packed fruit will meet with an active demand, at fairly moderate prices.

The importance of a wide and rapid distribution into the hands of consumers will be apparent to everyone—growers as well as shippers—and in connection with this feature of the trade we may say that during the season of 1896 we handled over 650,000 barrels of Americans and Canadians alone, and this year we have made preparations for the handling of an almost unlimited number with the greatest possible dispatch, without unduly taxing our facilities. As soon as the fruit is sold we cable the net proceeds so that our shippers may have their money in hand within a very short time.

A Good Advertising Medium.

The circulation of the Canadian Horticulturist certainly covers the Dominion. I have had enquiries for cacti from British Columbia to Nova Scotia, and as far south as Connecticut, U. S., all as a direct result of my advt. in the Horticulturist. Substantial orders have resulted, and it is a surprise to me to find so many interested cacti collectors in Canada. Your columns surely succeed in reaching the flower lovers all over the country.

Woodstock.

J. H. CALLENDER.

Our Affiliated Societies.

LONDON—Three thousand people saw the flower show at the City Hall yesterday and last night. The crush was greatest in the evening. So many sightseers turned out to see the exhibition by gaslight that it became necessary to increase the available floor space by removing some of the foliage plants altogether.

The show has been a success beyond the dreams of the London Horticultural Society, the directors of which had evolved the idea of holding the mid-summer exhibit. Not alone was the attendance far beyond what had been anticipated, but the exhibition was declared to be the finest ever held in Ontario. There were upwards of fifteen hundred exhibits of the choicest blooms that are to be found in the gardens of the province. Sweet peas were the feature, but the display of other blooms was not far behind that delicate little flower, the pea, which has been developed until every amateur florist has his row of them.

Judge R. M. Meredith's exhibit of sweet peas made yesterday was the finest among the amateurs. His Lordship showed no less than fifty varieties of peas, and had there been space could have added to them.

The City Hall was found too small for the purposes of the exhibition. Many fine blooms were so crowded together their beauty was not done justice to. "Next year we will have the Drill Shed," President Balkwell and Director Hamilton said last night.

So marked has been the success of the exhibition that it is believed that a great impetus to amateur flower growing will result, and that succeeding shows will witness keen competitions. The Horticultural Society is to be congratulated upon the outcome of this undertaking.—Free Press.

PARIS SUMMER FLOWER SHOW—The Paris Horticultural Society is to be congratulated on the success of its first attempt at providing a flower show for the citizens of Paris on Thursday last, August 9th. A large marquee was erected on the lawn of the Congregational Church, and this was filled from end to end with flowers and plants of every description. To particularize would be a hard matter, but special mention may be made of the exhibits of Messrs. Baird, Wickson, McCormick and Miss Burshall. In the

evening the sight under the electric light was an exceedingly pretty one. The tent was crowded all evening, and not the least interesting feature was an address by Mr. William Bacon, of Orillia, who by his lecture last winter firmly established himself as a prime favorite with Paris horticulturists. Mr. Bacon, at considerable inconvenience to himself, came here to act as judge, and his decisions, backed up as they were by a thorough knowledge of his subject, gave universal satisfaction. Kay's orchestra provided pleasing music, and an ice cream stand helped to cool the temperature of the inner man on a night which was perhaps the warmest of an exceedingly hot week. We trust the society will not be weary in well doing, but will repeat its efforts at a future date. The prizes were all honorary.

Out Door Art.

Being one of the Vice-presidents of the American Art and Out Door Association, the writer regrets not having been in attendance at the recent meeting in Chicago on the 5th of June.

Dr. Howard Taylor, in behalf of Mayor Harrison, welcomed the visitors to Chicago. His remarks were seconded by Wallace Heckman, President of the Chicago Art Association, and by P. W. E. Wight, who, in place of Franklin MacVeagh, represented other local art interests. President Charles M. Loring, of Minneapolis, responded to the welcome extended to the delegates and delivered his annual address. He complimented the association upon the growth of the last year, and the great interest which is being manifested in the work. "It is a matter of congratulation," he said, "that the Municipal Art League and the American Institute of Architects have the same ideals in view that the American Park and Outdoor Art Association is striving for, and that they are working harmoniously along the same lines. Our association is represented in twenty-eight states and territories, and in Canada. The influence of the present gathering will be far-reaching, inasmuch as the movement is just beginning to show its strength, and has reached that point where it will culminate in a wave of enthusiasm for beautifying scenery and landscapes throughout the country."

In impromptu addresses from the floor, delegates E. J. Parker, of Quincy, Ill., president of the Quincy Park and Boulevard Association, and Sidney A. Foster, of Des Moines, Ia., strongly advocated the establishment of such a system.

"I am pleased," said Mr. Parker, "to see throughout the country the manner in which our universities and higher educational institutions are taking up the work of landscape gardening. What we need now is to make the grounds of every village school a park, and after it has been made beautiful to keep it open the year round and allow the children to play there. If the school grounds were made park playgrounds throughout the country, the children who are being educated in parochial schools would flock to that place, and gradually overcoming the prejudices of their parents, the Public schools would soon make friends with the Roman Catholic taxpayer."

"To accomplish this we should establish a system of prizes to be offered for the best results obtained, and insist that the school boards throughout the country, as well as in the large cities, make public parks of the school grounds. I would suggest the necessity of the co-operation of the women's clubs throughout the country as a means to accomplish this end."

In order that delegates might see Chicago parks to the best advantage, the park commissioners entertained them with drives through the park and boulevard properties. The commissioners of the South Side were hosts the afternoon of the first day. The historical World's Fair site in its new dress was viewed with much interest, and the local committee took great pleasure in pointing out the landmarks of the vanished White City. After a ramble through the Field Museum, the bugles were sounded and the guests were taken for a tally-ho ride down Midway Plaisance to Washington Park, where the landscape effects and the greenhouses with their wealth of tropical verdure and mass of bloom were inspected with delight.

At Washington Park the guests were invited into the refectory (which, by the way, is maintained by the park commissioners) and a dainty luncheon was served to the delegates. Choice fern fronds were artistically arranged before the plates as souvenirs of the occasion. After this event the drive was continued down Drexel Boulevard to Michigan avenue, past typical Chicago homes, back to the Auditorium.

At the evening session J. H. Patterson and E. L. Shuey, of Dayton, Ohio, led in a discussion of ways and means of improving the conditions and surroundings of factories and employees' homes. The discussion was illustrated by stereoptical views, and much of interest was told of what has been done in the past few years by the National Cash Register Co., of Dayton. The views showed the homes of the laboring people before and after systematic attempts at improvement had been made by artistic grouping of shrubs and flowers.

"We have found the moral effect of beautifying the homes of our people most gratifying," said Mr. Patterson. "We all know that everyone is influenced by his surroundings, and if they are made attractive and beautiful the influence cannot but be good. On the other hand it will follow that unsightly, hideous surroundings will lower the moral, spiritual and physical life of the people. If we cannot make labor a pleasure, we can make the surroundings and conditions more bearable."

"I believe that the employer of to-day will find that in this very thing he has a problem of the gravest importance to cope with. Conditions since the advent of the locomotive and quick transportation have changed immensely, and we must adapt ourselves to them. In the old days men had small shops and few employees, and they were directly interested in their moral and physical welfare. I hold that the man who employs three thousand men and women has just a so much greater responsibility, and if he can make life brighter for them by showing them how

they can make their homes and small yards things of beauty, it is his duty to do so."

W. M. R. French, director of the Art Institute, was the next speaker. Said he: "It may be roundly asserted that the beauty of a small town is wholly dependent upon its trees. Watch yourself as you declare this or that village to be a beautiful place, and you will find that you mean simply that it has many and fine trees. Its beauty may be promoted by wide and orderly streets and by neat and tasteful buildings, and especially by care of trees and grass, but if the trees are really fine, it can scarcely be kept from being beautiful. With regard to the relation of trees and buildings or other artificial structures the principles are precisely those of pictorial composition. The effect of large, fine trees in the neighborhood of a building is so great as to need no enforcement. Visiting New Orleans, I was struck with the dignified, scholastic air of Newcomb College, the women's department of Tulane University, built upon an old estate where the walks are arched with great Live Oaks, as compared with the main buildings of the university upon new ground where the trees are yet to grow. I wonder that house builders do

not more often make sure of good trees. I have myself bought a tree with some land about it and built my home under it."

The entire afternoon of Wednesday was taken up with a trip through the West Park system, where the delegates were the guests of the West Park Board. Several stops were made in the parks, and places of interest pointed out to the visitors.

The business of the convention was all transacted at the morning session on Thursday. The officers whose terms expired at this time were re-elected for the coming year, except President C. M. Loring, who declined a renomination on account of ill health. Mr. L. E. Holden, of Cleveland, Ohio, one of the first and strongest friends of the movement, was unanimously elected president. Messrs. J. C. Olmstead, of Brookline, Mass, and Mr. E. J. Parker, of Quincy, Ill., were elected vice-presidents; Mr. Warren H. Manning, Boston, secretary, and Mr. O. C. Simonds, of Chicago, treasurer. The next meeting will be held in Milwaukee in June, 1901. A number of steps were taken looking to a wider field of work and to extending the interest in the movement in different parts of the country.

OUR BOOK TABLE.

SPRAYING CALENDAR, issued by Messrs. Stone & Wellington, Toronto. Free on application.

CANADA'S GREAT EASTERN EXHIBITION, 16th Annual Fair, September 3rd to 8th, Sherbrooke, Que. M. M. Tomlinson, Secretary.

EXPERIMENTAL FARM REPORTS FOR 1899. Dr. Wm. Saunders, Director, Ottawa. An excellent report of over 400 pages, full of valuable information for the farmer and the fruit grower.

GINSENG CULTURE. Information about this great Chinese root, with cultural directions by Harlan P. Kelsey, Tremont Building, Boston, Mass. This is a well written pamphlet, which we commend to all persons interested in the culture of this plant.

CYCLOPEDIA OF AMERICAN HORTICULTURE, comprising suggestions for cultivation of horticultural plants, descriptions of the species of fruits, vegetables, flowers and ornamental plants sold in the United States and Canada, together with geographical and biographical sketches by L. H. Bailey, Professor of Horticulture in Cornell University, illustrated with over 2,000 original

engravings, in four volumes, at \$5.00 each. New York: The McMillan Pub. Co., 1900. Vol. 1.

The second volume of this excellent work has just come to hand, and certainly it continues to make the same impression for excellence of matter and execution which the first volume made upon us. Every department of horticulture, including floriculture, pomology, commercial nursery propagation, the botany of horticulture, is not only fully written up but also beautifully illustrated.

One of the important features of the work is its application to our country. That grand work by Nicolson is for Englishmen, and quite misleads one with regards to dates of planting, adaptation, hardiness, etc., but on all these points Prof. Bailey has taken care to enter into the minutest necessary detail. We do not hesitate to commend this work to all our readers, whether fruit growers, gardeners, gentlemen of leisure, or of whatever profession, for it contains such information as it would take scores of books to give, herein gathered together in one fine production, and which cannot fail to both interest and instruct every reader.

PLANT DISTRIBUTION FOR 1901

FRUIT.

A. CUMBERLAND RASPBERRY, TWO PLANTS.

Described by the Introducers as follows:

This new Raspberry originated nine years ago with Mr. David Miller, a life-long horticulturist and fruit grower, who thoroughly tested it under all conditions. It is offered with the assurance that it is *the most profitable and desirable market variety yet known*, because of its *immense size, firmness and great productiveness*, well entitling it to the designation of "*The Business Black-Cap*." It has undergone a temperature of 16 degrees below zero, unprotected, without injury—a temperature which badly crippled similarly situated plants of Gregg, Shaffer, Cuthbert, etc. It is of wonderful productiveness, producing regularly and uniformly very large crops. *In size, the fruit is simply enormous*, far surpassing any other variety. The berries run seven-eighths and fifteen-sixteenths of an inch in diameter. In quality it is similar and fully equal to Gregg. Although extremely large, it is unusually firm and is well adapted for long shipments. In ripening it follows Palmer and precedes Gregg a short time, making it a midseason variety. It is an unusually strong grower, throwing up stout, stocky canes, well adapted for supporting their loads of fruit.

It is thought to be a seedling from Gregg, with a dash of blackberry blood in it. The Cumberland is a true raspberry, but it may be of interest to state that several seedlings from the Cumberland have had true blackberry foliage.

J. W. Kerr, Denton, Md., a well known horticulturist says :

"There is no horticultural effervescence in me; otherwise, I would bubble over or burst when I look at the fruit on those three plants of Cumberland Raspberry. I have grown Mammoth Cluster and Gregg that were very fine, **but this Cumberland is really a marvel.** Fifteen-sixteenths of an inch diameter was the measure of as large a berry as I saw of it, but they were all large. I let all the plants carry all the fruit they set, and they were very full. If this season's behavior is a safe criterion to judge by, I pronounce it vastly superior to any Black-cap I know anything of. I never knew any of its type to be so long in form as it is."

FLOWER.

B. SPIRÆA JAPONICA BUMALDA, ANTHONY WATERER

The Rural New Yorker says of it:

The most satisfactory Spiræa in existence; a constant bloomer. The plant is of low growth; the umbels of a bright pink color, brighter than those of its close relative, Bumalda. A profuse bloomer. Introduced there a few years ago.

Mr. Wellington says of it:

"Am also sending bloom of Spiræa Waterer. Quite a sight in nursery row and they bloom till frost comes."

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1901 in before the end of 1900. We want to make the first year (1901) of the new century a **record breaker** for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are **new** and **valuable**.

Any person sending in two names and two dollars, may have an extra plant in place of commission, and thus have for himself both the Spiræa and the Raspberry.

New Subscribers sending in one dollar for the year 1901, may have the balance of the year 1900 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

Remember the old proverb, "First come, first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants of trees from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.



FIG. 1911. LARGE FLOWERED SWEET SYRINGA.

THE CANADIAN HORTICULTURIST

Vol 23 1900 No 10

** OCTOBER **

THE SWEET SYRINGA.

FEW of the newly introduced flowering shrubs surpass the old and well known Sweet Syringa, or Mock Orange. Scientifically it is known as *Philadelphus Coronarius*, a genus of the botanical order *Saxifrageae*, which contains about a dozen ornamental shrubs.

The Syringa is easily cultivated and thrives well in almost every condition of soil and climate. Nothing is prettier than it when in bloom in the month of May, and its rich green foliage makes it an attractive shrub even when bare of blossom.

It is easily propagated by suckers, so that any one may easily increase the number of his plants and use them for a screen, or a clump on the lawn.

Our frontispiece shows a spray of a very beautiful species, viz., *Philadelphus Grandiflorus*, or large flowered Sweet Syringa, natural size. This is of American origin, having been produced in the Southern States in 1811, and now widely distributed both on this Continent and in Europe. The bush is a more vigorous grower than *P. Coronarius*, often reaching a height of

10 or 12 feet, under favorable conditions, and its season of blooming is two or three weeks later than the common variety.



FIG. 1912. SWEET SYRINGA.

The pruning of shrubs is often perplexing to the amateur, owing to the different flowering habits, some flowering on wood of the current year's growth, and some on that of the previous year, of which latter the Sweet Syringa is an example. Fig. 1912 shows one of them, the top part of which was pruned in May, just before its flowering

season, and, as a result, the whole top part of young growth is without flowers, while the old wood is laden down with beauty. The photograph was taken on June 30th. Had the pruning been deferred until about this date the whole bush would have been a thing of beauty, and the July growth would have been prepared for blooming in 1901.



FIG. 1913. A VIEW IN THE CHERRY EXPERIMENTAL PLOT.

TREES AND SHRUBS AT GIBBLAND FARM,

ABBOTTSFORD, QUEBEC, CANADA.

I WAS much interested in the historical notes presented to the readers of the *Horticulturist* a short time since, by Mr. J. M. Fisk, of Abbotsford. Such records as these are interesting to the reader who scans periodicals without any special point of interest in mind, but particularly to the fruit growers of the day who desire to know who the pioneers were who made the



FIG. 1914. OLD GRAFTED APPLE TREE AT GIBBLAND.

beginnings of an industry which has flourished to such a marked degree in the eastern townships of Canada.

Charles Gibb came to Abbotsford in the spring of 1873. Almost immediately he began the planting of fruit trees. His interest in ornamental shrubs and trees developed or was awakened somewhat later. As I recall it, his first plantings were made with native trees and a row of hardy maples which now

surround the lawn, were among the first trees set out with a view of beautifying the grounds. As time went on and his views on horticultural topics broadened, his interest in beautiful trees and shrubs deepened and his desire to place upon his own grounds specimens of the hardier types became keener each year. His visit to Europe in 1883 did much to increase his interest and his love for beautifying types of trees and shrubs. Between 1875 and '85 many forms of native and foreign shrubs and trees were planted at Abbotsford. The common types, such as cut leaved birches and maples, Norway spruce, Austrian and Scotch pine were planted first. Many of the rarer ornamentals were planted between 1880 and '85. Of course the mistake of planting too closely was not avoided. This is the common error of all lovers of trees and shrubs. When rare and beautiful trees are set out, we should give each tree sufficient space to develop normally. This, of course, is not good landscape gardening, according to prevailing fashion, for in following the most recent types of landscape gardening practically no attention is paid to the tree as an individual. Each variety is used for the purpose of giving mass effects. In following this kind of planting one may use cheap shrubs and trees and often obtain as pleasing effects as with the more expensive. In the planting at Abbotsford, it goes without saying that many ornamentals were set out which failed to endure the somewhat trying climate of the west slope of Yamaska mountain. I recall a beautiful specimen of imperial cut leaved weeping alder, planted in 1882, which survived two or three winters and was a thing of great beauty, but finally succumbed. So did a number of cut leaved Japanese maples, cut leaved sumach in addition to rhododen-



FIG. 1915.

CUP LEAVED BIRCH.

COL. BLUE SPRUCE.

WILD OLIVE.

WITH NORWAY SPRUCE HEDGE IN FRONT. GIBBLAND.

drons, althea, English walnut, and other half-hardy trees and shrubs.

Among the striking trees which remain upon the lawn at the present time are good specimens of Douglas fir, golden retinospora, blue spruce and red cedar; and among deciduous trees, Buffalo berry, wild olive, Schwerdler's maple, grape leaved linden, purple leaved birch, variegated ash and Kentucky coffee tree, are all in good healthy condition and succeeding admirably.

Douglas fir planted eighteen or twenty ago is now between 25 and 30 feet in height, is vigorous, healthy and apparently entirely hardy. This tree is intermediate in appearance and external characteristics between our native balsam and spruce. The leaves are much longer than spruce and are soft, being entirely without the prickly character-

istics of white or blue spruce. Golden Retinospora is a variation of the common type *Retinospora plumosa*. It must be confessed that the tree is more beautiful in youth than in maturity. When young—5 to 10 years—it is compact, owing to the peculiar character of its leaves and twigs, the general expression is feathery and beautiful, but as it grows older the branches become less densely clothed with the plume like foliage and the tree takes on a somewhat unclad expression which detracts much from its beauty. For best effects this tree should be planted in clumps and in masses. In spring this foliage is distinctly and markedly golden tipped. The deep yellow tints fade off somewhat during the summer, but it is a striking and attractive form at most seasons of the year. Blue spruce (*Picea pungens*) is so well known



FIG. 1916. A VISTA IN GIBBLAND FARM.

that nothing need be said regarding its many good points. A tree of this type should always be planted where it can develop symmetrically. The natural habit of the branches is such that if crowded on one side by encroaching trees or buildings much of its natural beauty will be taken away. Red cedar though a common tree in western and central Ontario and the middle states, is very slightly known in Quebec. A clump of the western type was planted in the lawn at Gibbland in 1881. They have grown slowly but have fruited profusely for the last eight or ten years. This tree does well either singly or in masses.

Buffalo berry was secured by Mr. Gibb from the western states about twenty years ago. A group of these was planted in the lawn also; fortunately, both sexes were secured and the trees have fruited abundantly for several years. In the autumn, when they are loaded with their masses of light red berries, they are even more beautiful than during the early summer months when carrying their covering of silvery leaves.

Another tree which is becoming popular in the west and which was introduced into Quebec by Mr. Gibb about the same time, is the oleaster or wild olive, *Eleagnus angustifolia*. This tree is being freely planted in the upper Mississippi Valley states. The clear silvery expression of the foliage is strik-

ing. The tree is a rapid grower, stands cold and heat well and is useful as a wind break and as an ornamental. From my observation of this tree, I am of the opinion that it is more at home in the hot and dry western country than in the humid region of the east. At all events it is a desirable shrub to introduce in the lawn for the purpose of adding variety to landscape coloring.

For the same purpose the purple leaved birch and Schwerdler maple, a red leaved type of the Norway spruce, are very useful. They have both succeeded admirably at Gibbland Farm.

PINUS EXCELSA (*Bhotan pine*).—This tree is practically the European white pine. A casual examination might easily lead one to believe that he was looking upon a slight variation of the ordinary type of our American



FIG. 1917.

DOUGLAS PINE
(*Pseudotsuga Douglasii*.)

BHOTAN PINE
(*Pinus excelsa*.)

20 to 25 ft. high. GIBBLAND.

Pinus strobus. We learn that Bhotan pine is found in the Himalayas at elevations between five and ten thousand feet. This is its home. Here it flourishes, growing frequently to the height of 150 feet. Brown, the noted Scotch forester, states that it was introduced into Britain in 1823. It appears never to have been very widely cultivated, but specimens are found scattered throughout the British Isles and in America; one frequently meets with it in the New England states. Like white pine, the leaves are found in whorls of five. They are glabrous on their inner faces and a blueish green without. The cones are produced singly, are cylindrical and slightly conical in form.

The tree has a very general resemblance to the white pine. The distinguishing points are the leaves and the cones. The former

are longer and the latter more slender. In outline, the Bhotan pine is tall and distinctly conical. The specimen at Gibbland farm was planted in 1878. It is now something over twenty feet in height. Not quite as tall as a Douglas spruce along side of it which was planted at the same time, (see illustration.) The wood of Bhotan pine does not appear to be as much prized as White pine, being somewhat softer in texture with less strength. The chief uses of this tree then are those which serve the aesthetic, and tend to please the eye. In outline it is handsome and symmetrical. In shading and coloring, like all silvery leafed trees in the early part of the summer, it is particularly soft and beautiful.

JOHN CRAIG.

Cornell University,
Ithaca, N. Y.

OUR FRUIT MARKETS.

LOOKING at the value of our Winter Apples from the standpoint of the fruit grower, we are inclined to take the views of apple buyers *cum grano salis*. First, we are told of the enormous crops in England and on the Continent then that the crop of North America is equal to that of 1896, when prices ruled so low in the month of December that many shippers only received about enough to pay freights, and had better have left their apples to waste in the orchard.

It appears that these buyers have met in Toronto and agreed to pay only 50c. a barrel for winter apples! Are we growers to have such a low price put on our goods as this and submit without a word? The fact is that these buyers are organised and will act in concert with regard to the purchasing price, while we growers, having never agreed about the selling price, are simply at their mercy, and must take what they choose to offer.

Were it not for the organization of the buyers, the law of competition would get us fair play, but as it is what can we expect but to suffer from a disadvantage? But even this condition of affairs may not be an un-mixed evil, for it will lead to a new system of fruit shipping, sooner or later. At Grimsby, for example, eight of us, who have large orchards, have united for the purpose of packing our fruit uniformly and making up carload lots for export on our own account. We grade our finest colored apples with Wartman's grader, making apples $2\frac{1}{2}$ inches in diameter No 1, $2\frac{3}{4}$ A No. 1 and 3, Extra A No. 1; or, instead of Grade we sometimes use the words Diameter $2\frac{1}{2}$ inches, etc. We wrap them in tissue paper and pack them in boxes, with excelsior or sphagnum packing. Then we use a uniform set of marks, so that the goods we ship are at once recognized, and will command their true value in any market

There is very little difficulty in making up car lots at any time, for each man need only furnish one-eighth of the lot, and if there is anything to be made, we get it.

And now regarding the outlook for our apples this fall. We have numerous circulars from apple receivers. For example, Jas. Lindsay & Son write as follows:

As the apple season is now about to begin, we beg to advise you that the prospects with us are as follows: Green fruit, for cooking purposes, is very abundant, especially the English crop, also the continental crops are advised to be very heavy, and as the shipments from this quarter mostly consist of cooking apples of a green nature, then we advise you that in the early part of the season green fruit will not do to ship from your district, as it would have to contend with a market that was heavily supplied of the kinds mentioned above, shipped from England and the Continent. The rates from these places being much lower than the rates from yours to ours it would only cause a loss to you to send fruit of this grade. The only kinds that will pay to ship in the early season are the colored varieties, such as Kings, Spitz, Spys, Baldwins, Vanderveers, Wagners, Blush, good clear sound Snow's, and any other good colored variety of a good carrying quality. It is also our opinion that it will not do to ship common qualities this year. The expenses are too heavy, and before that such could be cleared there will be nothing left for the goods, should they even manage to clear expense, which would be doubtful.

No doubt this gives us a good idea of the condition of things in Great Britain; but as regards the crop of this Continent we think it is an over-estimate to say that it will exceed that of 1896. Possibly the gross results may equal 1896, but the quantity of No. 1 stock will be much less than a general survey of the orchards would indicate.

In the first place, from one-third to one-half of our fruit will be unfit for export from the ravages of codling moth and apple worm. These insects grow more troublesome every year, and no fruit infested with them should be sent forward.

In the second place, a large percentage of the clean, perfect fruit will be too small to export. No apple of such kinds as King, Greening, Baldwin, etc., which is below $2\frac{1}{2}$ inches in diameter should ever be put up for this purpose; and if this rule be applied,

as indeed it should be, there will be plenty of room in the old world for all our fruit. It would be a good law which would compel every packer or shipper to stamp on the outside of each package the minimum diameter of the fruit inside, for this would help buyers to buy with confidence.

Another outcome of the low prices and consequent dissatisfaction on the part of the grower is the Packing Company, a business conducted after the model of the Packing Companies of California. Van Duzee & Griffith, Grimsby, and E. D. Smith, Winona, are examples of this method. Fruit is purchased by grades, to facilitate which orange graders have been imported from Ohio. The price offered varies according to the grade, which is soon settled when the fruit has passed through the machine. Suppose, for example, ten baskets of peaches are brought in by John Smith, who is to receive 60c. for A1, 40c. for No. 1, and 20c. for No. 2; the grader turns out—

3 A1 at 60c. .\$.1.80

4 No. 1 at 40c. 1.60

3 No. 2 at 20c. 60

Or a total of. \$.4.00 for the ten baskets.

John Smith is perfectly satisfied with the result, but goes home inwardly resolved that in future he will take care to grow no more No. 2 peaches, and if possible to grow all A1; a lesson he would never learn if he had sold the whole in bulk at perhaps 30c. a basket.

This means that John Smith in future will cut out or top graft over all poor varieties of fruit in his orchard, give better cultivation and manure, prune and thin, until he reaches an ideal product, which will command the highest price in any market in the world.

Already our efforts in the direction of improved packing are being appreciated abroad. An English trade paper says:

We are particularly pleased to testify to the quality of the Canadian fruits. They are far

superior to the American, the flesh of the fruits is finer, more juicy and toothsome, whereas a good many of the California Newton apples are hard and quite different to those sent from Canada. This is proved indirectly by the excellent prices which rule for the best Canadian stuff. We throw out a hint to the retail fruiterers and

dealers in the cities and towns of the United Kingdom. Why not ticket these fruits as "Canadian"? If that were done the public would do its duty without hesitation, and a taste of "the real thing" would soon create an immense demand for the finest of fruits from the fair Dominion of Canada.

CANADA AT PARIS.

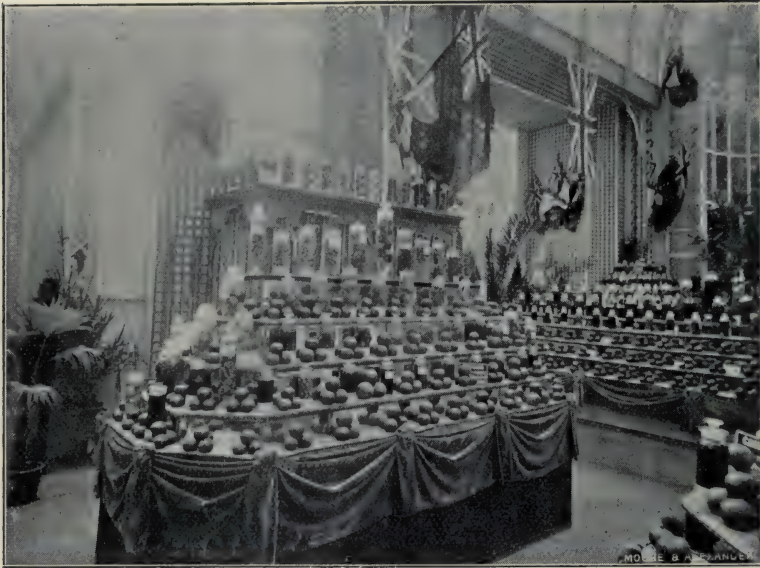


FIG. 1918. HORTICULTURAL DEPARTMENT OF THE CANADIAN EXHIBIT.
DISPLAY OF APPLES AND OTHER FRUITS.

THE REPORTS that come to us concerning the fruit exhibit from Canada at the Paris Exposition are most satisfactory, and our readers will be glad to have a glimpse of the display of apples of the crop of 1899, which were collected by Mr. A. McAllan, of Goderich for Ontario. All provinces which grow apples for export were represented but we have not the names of those who collected for the other provinces.

The writer has also forwarded 32 cases of apples peaches and pears of the current year's crop, which were taken in cold storage

to Manchester, and are to be forwarded thence to Paris.

The varieties sent included ; — *Peaches*, Elberta, Lord Palmerston, Late Crawford ; *Pears*, Flemish Beauty, Triomphe de Vienne, Duchess, Louise, Howell, Clairgeau, Anjou, Souvener de Congres and Diel ; *Apples*, King, Greening, Cranberry, Cabashea, Maiden's Blush, St. Lawrence, Swazie, Golden Russet, Black Detroit, Ontario, Wealthy, Spy, Pewaukee, Stump, Colvert, Bottle Greening, Mann, Alexander, McIntosh, Fameuse, Ribston,

PICKING AND PACKING APPLES.

USE ladders of proper length to reach well up to the top of the tree. Use half-bushel baskets with hooks on handles. Be very careful in handling ladders. Commence picking about ten days before all the apples on the trees are ripe, and (in red varieties, especially Rome Beauties) only pick those that are of a good red color and would be likely to drop before all would do to pick—say about one-fourth of the apples. This saves the ripest and lightens up the tree. In about ten days, or at the usual time of commencing, pick the orchard over again and take at least half this time of the best colored apples.

Then, in about ten days, commence the third and last picking, and by this time and mode of picking the apples will have grown and colored up so they will be about all good, salable apples and the increase in color and in size of the apples will pay for all the extra work and give you a handsome profit besides.

I take my barrels to the orchard and fill them from the baskets as they are brought from the ladders, putting the baskets down in the barrels and turning them over with great care. Haul them to the barn immediately and not let the sun shine on them or let them get wet. Store the barrels on a

dirt floor, the best because coolest and dampest. When you want to pack them have a table about ten feet long by three wide, with side boards about eight inches high. Line the table with carpet. It need not be Brussels. Pour out three barrels on the table at a time. With two men to sort, use six baskets. Make at least three grades of apples, putting the very largest in one basket and the medium size and the good colored ones that are a little below that size in another basket. Put the small and the culls in another basket. In filling the barrels with the different grades, pick out nice, smooth, well colored apples and “set” or “face” the heads of the barrels with them, leaving the very largest apples of each grade to fill in the middle of the barrels, so that if the buyer turns out a barrel he finds the best apples in the center of the barrel. Fill the barrels up and level the apples to the top of the staves. Press the head in so that not an apple will move in the barrel. Nail hoops well and turn the barrel over and put your name on the other head with the variety of apples and number of grade. If you pack and grade thus you can always find market as soon as your name is known.—*Fruit Trade Journal*.

RED APPLES, WELL PACKED, WANTED IN GERMANY.

Edward Jacobs & Sons, Hamburg, write under date of Aug. 10: “The home crop is more abundant than last year, but the demand for American and Canadian apples increases year by year, and we have every reason to believe that good average prices will be made. The red varieties are in

most request. Very few Greenings and Russets are inquired after, so we should not advise too many of the latter sorts.

“We must impress upon all shippers to see that the fruit is carefully graded and that the apples are put up in a manner that they arrive in good order and not slack.”

A HOME-MADE CIDER PRESS.

ON the farm where there is no cider mill, a large number of good apples are wasted every year. These might be converted into cider. The accompanying illustration is

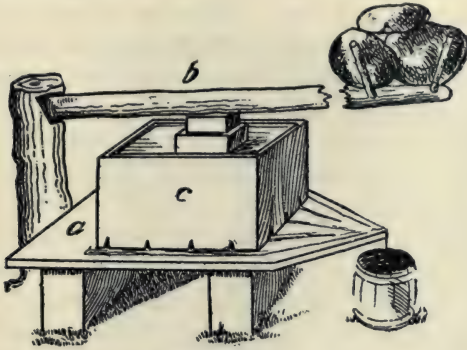


FIG. 1919.

THE CIDER PRESS IN POSITION.

of an easily made press for the purpose of utilizing those apples. Simply procure a plank about 4 foot in length, and as broad as available, and a stout pole, *b*, 15 to 20 ft. long. Make a frame or vat, to hold the apples to be pressed. It can be constructed of 1 in boards, about 1 ft. square. Set this vat on the plank, *a*, and have a channel cut round it in the form of the letter Y. Place the plank and vat at the base of a tree or

stump, using a few blocks to raise it from the ground one or two feet. Now cut a deep notch in the tree or stump about $1\frac{1}{2}$ or 2 ft. above the plank and insert the heavy end of the pole. At the other end of the pole set four pins as shown.

The apples to be squeezed with the press are thrown into the vat a few at a time, and a heavy wooden stamper is used to crush them. When the vat is full of the broken-up apples, a wooden cover, fitting inside of the vat, is laid on top. A few blocks are placed on top of this cover so as to allow the pole to press down on the movable covering. The pole is weighted down with heavy stones or boulders placed between the four pins at the end remote from the press. Cut several small V-shaped openings round the bottom of the vat, or make a system of channels, connecting with the large channel to collect the juice and permit it to follow the course along the plank until it reaches the vessel used to receive it.

The illustration shows the press when completed and also explains the manner of using it. I can confidently assure any farmer readers that this press, which will cost practically nothing, will give entire satisfaction.—*American Agricultural*.

CIDER MAKING HINTS.

THE present season with its promising apple crop will undoubtedly see a great deal of cider and vinegar made. The prevailing idea that cider can be made from any kind of apples, may result in a great deal of poor cider and consequently poor vinegar. Especially is this true in sections where premature dropping is more

common than usual. An attempt will undoubtedly be made to utilize this partially matured fruit by making it into cider. This may be the best means of disposing of it, but good cider cannot be expected from such fruit. It will be thin and watery and vinegar made from it will contain a small percentage of acetic acid. As most states

require 4 to 4½ per cent of acetic acid, vinegar made from poor cider must be tested before being sold.

As the amount of acetic acid in vinegar will depend primarily on the percentage of sugar which the cider contains, it can easily be seen that to have the best cider and cider vinegar, well-developed apples containing enough sugar to make at least 6 per cent alcohol must be used. They should not be of the very sour variety nor of the very sweet. Russets, Smith's Cider, Snow and those of that class are the best. However, by judiciously mixing sweet and sour, a high-class product results.

Another element of success is a clean cider mill. Of course, up-to-date cider makers have improved machinery and keep their buildings and presses perfectly clean, but in many of the apple-growing sections, there are small mills and presses. These are seldom in best condition. All apple pomace should be removed as quickly as possible and not allowed to decay near the mill. The crushing rollers and the presses should be cleaned frequently and fumigated, if possible, by the use of burning sulphur. If the pomace cannot be utilized for stock feed, it

should be hauled away and spread upon the land as fertilizer where it will be of the most benefit. All tanks and utensils used about the mill, where fumigation is impossible, should be scrubbed with lye from wood ashes or a strong solution of crude potash.

If the utensils are so old that taint or smell cannot be removed by this process, it pays to abandon them and get new ones. Where satisfactory conditions concerning surroundings cannot be obtained, it is best to haul the apples to the cider mill, have them worked up at once and take the cider home the same day. This prevents the absorption of objectionable odors and reduces to a minimum the evil effects of a poorly kept cider mill.

After the juice has been extracted from the apples, the cider should be kept at a temperature of about 65 degrees if possible, where wanted for use as cider. Even then fermentation will soon begin. After a few days the cider can be racked off into barrels which have been well cleaned. Fermentation, or at least the tendency to turn to vinegar will be checked.—*American Agriculturalist*.

MARKETING THE PLUM CROP.

In most cases experience has proven that plums, if shipped to market in 10-lb. grape

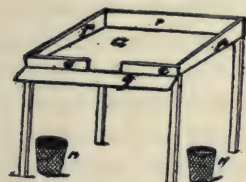


TABLE FOR ASSORTING PLUMS.

baskets, provided with handles, and put up in neat, presentable shape, will bring the producer a greater percentage of profit than if shipped in half-

bushel or bushel crates or packages. A careful picker can fill the basket direct from the tree, but the usual plan is to pick into

large receptacles, then, carefully sorting the plums, place in packages ready for market. This frequent handling removes a great deal of bloom from the fruit, which removal should be avoided as much as possible.

By the use of a single table as illustrated, plums and other similar fruits are easily assorted. The top of the table should not be over 3 x 2½ ft. The sides and back, *r, r, r*, may be 8 in. wide at the back, tapering to 3 in. in front; the front guards, *c c*, should be less than 3 in. high, leaving a 6 in. space between the inner ends; the

slanting board, *g*, is 6 in. wide. To operate it, place the fruit carefully upon the table, the assorter occupying a chair in front of the table, with a basket on his lap. Both hands can then be used in removing the leaves, limbs, damaged or imperfect fruit, throwing the refuse into baskets, *n, n*, on the floor. The perfect fruit, or that intended for shipment, is rolled in front,

and passes over the incline, *g*, into the basket. This table need cost but little, and may be made in as crude or elaborate a form as wished. In working, the elbows can rest upon the guards, *c c*, which will make the operation much easier. An ordinary table can be fitted with these simple appliances and quickly removed after the shipping season is passed.—*Farm and Home*.

YORK IMPERIAL APPLE.

The York Imperial is being so extensively grown in New Jersey that it was judged expedient by the Executive Committee to insert a plate showing three distinct forms often occurring on the same tree, kindly loaned to us by the Pennsylvania Agricultural Experiment Station and to give a description of the apple as it appears in bulletin No. 43 of same station as follows : "York Imperial :—Sometimes listed in catalogues as Johnson's Fine Winter, and in its native county sometimes referred to as the Shep apple, Shep being a word of the Pennsylvania German having reference to the oblique shape of the fruit. The tree is a vigorous grower with slender, drooping

branches after the manner of Ben Davis. It comes into bearing at four years after planting, bears regularly and heavily. The foliage is remarkably free from scab. The fruit is of medium size, oblong, angular, oblique, smooth, skin yellow and almost wholly covered with two shades of red, the darker one disposed in indistinct stripes ; basin deep ; cavity deep and narrow, stem short ; flesh yellow, juicy, firm, sub-acid, good ; season late winter, a good shipper, bringing high prices." Mr. DeCou : I think it is a mistake to speak of the Yorktown Imperial as a second variety. It sells second alone to Newtown Pippin in the English market.—*New Jersey Horticult. Report*.

AN ARSENIC PREPARATION.—The spraying mixture formula by Professor Kedsie of the Michigan Agricultural College, is as follows : Boil two pounds of white arsenic and four pounds of salsoda for fifteen minutes in two gallons of water. Put into a jug and label "poison," and lock it up. When you wish to spray, slake two pounds of lime and stir into forty gallons of water, adding a pint of the mixture from the jug. The mixture in the jug will cost 45 cents, and this is enough for 800 gallons or twenty barrels of spray. These twenty barrels will require forty pounds of lime, which will cost twenty cents more, making the total cost 65 cents

for twenty barrels, or $3\frac{1}{4}$ cents per barrel. It is claimed that Professor Kedsie's mixture is more reliable in use than Paris green as an insecticide, that it does not burn the trees and is less expensive. Professor L. R. Taft, of the Michigan Agricultural College, thinks the salsoda in Kedsie's spraying mixture is unnecessary, and as it adds greatly to the cost of the material he does without it. He says : "I prepare the arsenic mixture by boiling one pound of arsenic with two pounds of lime in two gallons of water, for 30 or 40 minutes ; and for fruit trees I add this to 400 gallons of water or Bordeaux mixture."—*California Fruit Grower*.

PARASITIC FLOWERING PLANTS.



NUMBER of our indigenous flowering plants have not hitherto been successfully cultivated. Some of them when in bloom would be very attractive objects in the flower garden, for they are both beautiful and showy. The difficulty has arisen from inattention to the fact that they are root-parasitic. It is not supposed that they are wholly dependent upon their host plant for food ; in fact it has been demonstrated that some of them are not, but nevertheless they are not vigorous and healthy without the nutriment derived from the host. They grow from seed just as any other seed bearing plant ; are nourished for a time by their cotyledons, their root extending into the earth and branching out in search of food supply. Upon the branching roots suckers are formed, which attach themselves to the roots of the appropriate host, and draw from them the required nutriment.

At present it is not known what plants are chosen as host ; whether each requires its own particular host, or uses indifferently any one of several that it may chance to find within reach. Here then is an interesting field for original researches. Who will work it and thus contribute a new item to the sum of human knowledge ? Without waiting for this the gardener can note what plants are growing within reach of the one he wishes to cultivate, and by growing them in connection with it secure the required host.

The parasitic plants that will be named are only such as one might desire to cultivate for the flower garden, and are all to be found growing wild in Ontario. Two of these are perennials, which when properly taken up can be transferred immediately to the flower border ; all of the rest are annuals that must be grown from seed. With regard

to the perennials it is important to bear in mind that the suckers are developed only near the extremity of a rootlet, which forms the terminus of the fleshy roots, radiating horizontally in all directions. About the time that the seeds ripen that portion of the host's root which has been fed upon will have decayed, and the suckers getting no more nourishment also perish. Obligated now to seek supplies elsewhere the tip of the root begins to extend itself and continues to elongate until it meets with a live root of a suitable host plant, and then it develops a new sucker upon the newly found root. These perennials are the two which will now be briefly described.



FIG. 1920—WOOD BETONY.

PEDICULARIS CANADENSIS—Linnaeus. Wood Betony. A low growing plant bearing red or yellow flowers in short spikes, with fern-like foliage, blooming in May and June in dry woods throughout Ontario. It is very abundant in the neighborhood of Toronto. (See Fig. 1920) an outline sketch of a small flower cluster with only the stem leaves.

PEDICULARIS LANCEOLATA Michaux. Swamp Lousewort. The flowers of this

species are yellow, blooming from August to October. Grows in grassy swamps in Cayuga, Haldimand County, and in Malden, Essex County. (MacLagan.)

In growing the following, which, save one, are annuals, or at most biennials, it will be necessary when gathering the seed, or before, to make careful note of the plants growing within reach of their roots, and to either secure seed of all of them or to transplant them to the border, so that the roots of the Parasite growing from the seed may have no difficulty in finding very soon the roots of the host.

CASTILLEIA COCCINEA, Sprengel. Scarlet Painted-Cup. This very showy scarlet-bracted annual or biennial grows in warm, sandy soil, from Belleville, Hastings County, to the Detroit River, and is in flower from May to July. Mrs. Traill in her studies of "Plant Life in Canada," says of it: "The whole plant is a glow of scarlet, varying from pale flame color to the most vivid vermilion." It used to be abundant on the banks of the Humber River, near Toronto, but it is gone; the beauty of it caused every

one to pluck it; so no seed could ripen. Thus it is with many of our wild wood beauties; they are fast disappearing.

See Fig. 1921, showing stem leaf and a separated flower.

CASTILLEIA ACUMINATA Sprengel. Lance-leaved Painted-Cup. This is perennial, the bracts are yellowish or greenish,

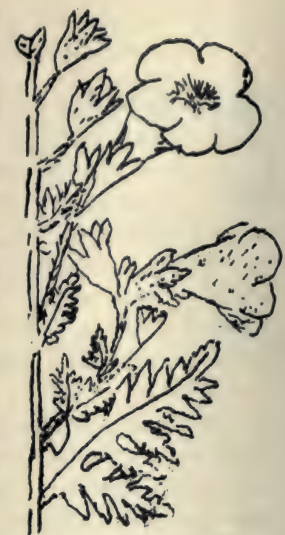


FIG. 1922—FALSE FOX GLOVE

and is in bloom from June to August. It grows in moist soil on Michipicotin Island, and at the Hudson Bay Post, entrance to Nipigon River, Lake Superior. (Macoun.)

DASYTOMA PEDICULARIA, Bentham. Fern-leaved False Fox-Glove. A beautiful plant, both in foliage and flower; its numerous orange-tipped, half-opened buds, profusely scattered among the fully open, rich yellow blossoms give to it a very attractive appearance. It is yet abundant in the dry, light soil of the wooded banks of the Humber River, near Toronto; where it may be found in bloom in the month of August. Reported at the Niagara River and Burford Plains, Brant County.

See Fig. 3, an outline sketch of one side of a branch, showing an open flower and leaves.

DASYTOMA VIRGINICA, Britton. Smooth False Fox-Glove. Is usually to be found in company with the species above named; it is of a more robust habit, foliage reminding one of that of the oak, hence the name given to it by Pursh, "Oakleaved." The flowers are large, an inch and a half to two inches



FIG. 1921—SCARLET PAINTED CUP.



Fig. 1923—GERARDIA.

long, of a light yellow. Abundant near Toronto, blooming in August, and reported at the Niagara River, in Cayuga and Malden Townships (MacLagan); near Hamilton (Logie), and near London (Saunders).

GERARDIA PURPUREA Linnaeus. Large Purple Gerardia. Plant grows from one to two feet high; bears broad purple flowers an inch long in August and September. Found at

Niagara Falls (Burgess),

and Windmill Point, Lake Erie (D. F. Day).

GERARDIA PAUPERCULA Britton. Small-Flowered Gerardia. This is from six to

twelve inches high, exceedingly pretty, with numerous rose-purple flowers about three-quarters of an inch in length. It is very abundant in the moist sand of Toronto Island, blooming there in August. Its range is from Ottawa to the Lake of the Woods, in moist soil. See Fig. 1923, showing a branch with flowers.

GERARDIA TENNIFOLIA Vahl. Slender Gerardia. A very slender plant, from six to 24 inches high, with narrow linear leaves and light purple spotted flowers less than an inch long, appearing in August. Macoun says on dry, sandy banks of the Humber River, near Toronto, but the writer has not yet been so fortunate as to meet with it there. On Prince's Island, near Hamilton (Logie); in Niagara and Malden Townships (MacLagan).

Toronto.

D. W. BEADLE.

SOME APPLE LORE.—Apples were formerly underestimated, they were scarcely considered a fruit rare enough for the consideration of the epicure, unless, indeed, they formed a part of some elaborate dessert, compounded and cooked by a skilled housekeeper. Apple jellies, puddings, pies and cakes might do, but plain raw apples were fit only for school-children, vegetarians, or the poor. All this is now changed and the apple has come to its own again. But if its flavor has been at various times slightly esteemed or discredited, at least its wholosomeness has been steadily recognized. "Apple sayings" are frequent, both in our country and in England, all of which testify in favor of the fruit. In the "west countree" there are four such :

An apple a day
Sends the doctor away,

is the first and briefest. Then follow in the order of their vigor, three more :

Apple in the morning,
Doctor's warning.

Roast apple at night,
Starved the doctor outright.

Eat an apple going to bed,
Knock the doctor on the head.

A little less aggressive is one of the Midlands :

Three each day, seven days a week,
Ruddy apple, ruddy cheek.

More interesting than these is an old orchard verse which used to be recited on certain ancient farms on the plucking of the first ripe apples of the crop. Misfortune was supposed to follow its omission, and its utterance was quite a little ceremony, the first apple over which it was spoken being presented to a young girl, who halved and bit it before any further fruit was gathered, or at least tasted. Thus it ran :

The fruit of Eve receive and cleave,
And taste the flesh therein ;
A wholesome food, for man 'tis good
That once for man was sin.
And since 'tis sweet, why pluck and eat,
The Lord will have it so :
For that which Eve did grieve, believe
Hath wrought its all of woe—
Eat the apple !

S. REYNOLDS HOLE, D. D.



FIG. 1924. VERY REV. S. REYNOLDS HOLE, D. D.
Dean of Rochester.

AFTER reading that charming book "Our Gardens" by Dean Hole, we feel justified in giving place to a paragraph concerning this notable gardener clergyman, which appears in the *Agricultural Epitomist*, as follows:—

"Wit and wisdom in a delightful intermingling are embodied in the personality of the genial Dean of Rochester, and the same blend of happy qualities shines in all his writings.

"No wonder he is welcome and beloved by men in every class and station, but above all by those who share his passionate affection for flowers and garden.

"At eighty years of age he is the delight of all who know him personally or by reading his books. His 'Book about Roses' has run through fifteen editions, and is still 'run-

ing' if I may copy a phrase from the advertisements with which Mr. Penley booms his laughable play of 'Charley's Aunt.'

"To read one of Dean Hole's books is a kind of feast for an epicure. The solid food of information is so varied by the appetising adjuncts of wit and humour that nothing palls or satiates the reader. You commence with a few striking phrases which arrest the attention and stimulate the mental appetite. You are easily carried on through course after course of interesting matter. You find yourself deeply absorbed, before you know it, in the solid discussion of the main subject. By and bye a whimsical reminiscence lightens your reading ere your attention is tired and can begin to flag. Then come courses of sweets and you finish the book with satisfaction as you would finish an excellent dinner skilfully arranged by a master of cuisine and faultlessly cooked and prepared for you.

"Let me give an illustration or two from memory. I remember the opening phrases of the 'Book about Roses.' The idea they embodied arrested and stimulated my attention instantly. I felt the truth of them and the force of them. They declared that he who would have beautiful roses in his garden must have beautiful roses in his heart.

"I remember, too, a skilful enlivening by Dean Hole of his dissertation on manure for roses. I am myself engrossed in the question of manures. It is a question which fascinates me because I think I see in it the solution of the problem of humanity. The increasing crowds of men growing ever more dense as civilization advances will either become happier and further removed from want and misery as they grow thicker on the ground, or they will become a struggling mass of wretched and desperate competitors and antagonists. It is all a question

of conservation of manure of increasing or exhausting fertility.

"In this spirit I can read M. Ville or Justus Van Liebig with inexhaustible interest.

"Now when I came to Dean Hole's chapter on manure I wondered how he would treat it. I was not disappointed. The substance of information and advice was all there. So were the wise thoughts and deductions. But in the midst of the essay on what is necessarily a scientific and practical subject, there was a touch of enlivening comedy skilfully introduced as Shakespeare brings in the farcical interlude of comic grave-diggers to relieve the too deep interest of Hamlet.

"This is how I remember the incident in the chapter.

"The Dean is anxious to impress the reader with the value of horse-droppings for roses. He impresses the importance of saving and utilising so precious a material. He mentions his own high estimate of dung. And then comes the story.


"He was returning to the Deanery one

day from a round of duty visits, and as he approached the home up the garden drive, he noticed that visitors had been in a carriage. Their horse or horses in quitting his home had dropped liberal deposits. The opportunity was not to be lost. He hastily turned into a side shed, secured a shovel, returned to the gravel path, picked up the deposits and hastened off with them to enrich the roots of some of his beloved rose trees. As he entered the Rosary—horror of horrors!—he met full face a party of ladies in holiday garb and smiles! The visitors in fact had not departed, but were still in the garden, and their first meeting with their host was under circumstances which caused his cheeks to emulate the glow of his own most deeply tinted rose-buds!

"There I think my recollection of the book and its apt enlivening is a fair tribute to the skill of the author. In the same way I could fill many columns with memories of his 'Memories.'

"May he be preserved to us until he is a hundred at least."

A NEW PACKING MATERIAL FOR FRUITS.

N interesting experiment has just taken place in the matter of packing fruits in the colony of Victoria for shipment to England.

As is pretty generally known, apples and pears are now brought from the Cape of Good Hope and from the Australian colonies in boxes holding a bushel, which are stored on board ship in cool chambers. The fruits are merely wrapped in tissue [paper] and placed in the boxes.

Under this system, apples have for the most part come very successfully; but pears have been less satisfactory. Occasionally there have been pears from the Antipodes that have reached this country in a sound condition, but numerous consignments have

proved to be of little value, and the commission agent is never able to speak of such fruits or to gauge their value until they have been unpacked. The freight per bushel, from Victoria to London, for apples or pears so packed and stored on board ship in cool chambers, is 3s. 9d.

Instead of packing the apples wrapped in tissue only, in the case of several bushels that have recently arrived in London by the S. S. Wakood, a quantity of asbestos, or a preparation of this substance, has been used. The fruits were wrapped in tissue as formerly, and afterward embedded in the asbestos, each fruit being perfectly surrounded by this substance. Upon unpacking the case, the asbestos appeared to be

caked, but it was easily broken up, and then appeared almost like flour. We should suppose, therefore, that the fruits would be air-tight under such conditions, and this will account for the fact that as we saw them they were perfectly sound, and in excellent condition, although five months had elapsed since they were packed in the boxes. The apples were gathered and packed previous to May 5 last, but owing to some objection, we believe, on the part of the steamship companies, there was a delay of two months or more before shipment, and even then they travelled by the Cape route. The new system, should it answer to expectations, will possess several

advantages. The fruit may then be stored in the hold of the ship and the freight per bushel case will be 6d. instead of 3s. 9d. ; but as the packing material will displace a quantity of the fruits in each package, it may be well for present purposes to describe the future freight of the fruit as 1s. per bushel.

It must be remembered also that the asbestos is a valuable material in England, and it will be sold to as much advantage as will the apples. The result will be that the asbestos and fruit will be brought to England for less money than is now paid for the fruits alone.—*Gardeners' Chronicle*.

A BAD INSECT PEST.

One of the worst pests that the apple grower has to fight is the railroad worm, called also the pulp worm, and the apple maggot. The fruit growers of Vermont are unanimous in giving this insect the first rank among their insect enemies.

It is worse even than the tent caterpillar. That can be entirely overcome by spraying, whereas spraying has no effect on the railroad worm.

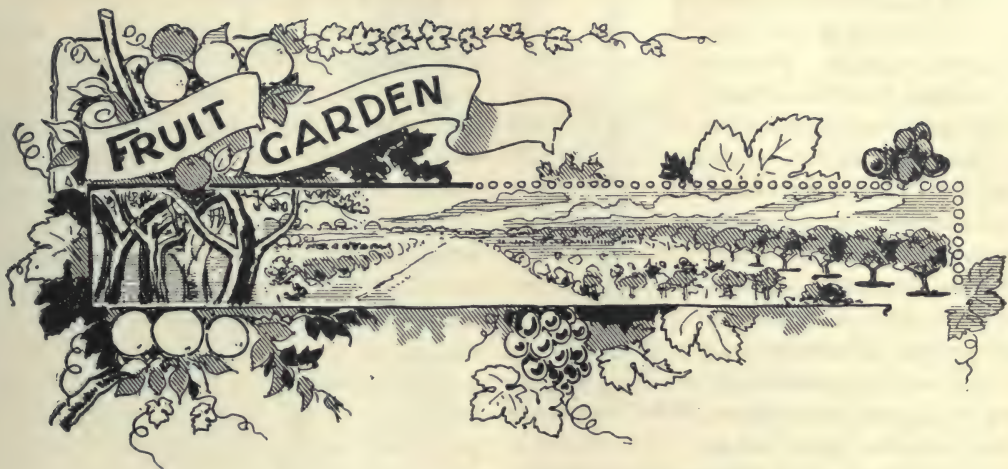
The railroad worm, or apple maggot, is the cause of the pulpy, punky condition of the apples as we find them now in the stored fruit and in that offered for sale. The eggs are laid just under the skin of the apple by a small fly. This fly begins her work in June and keeps it up pretty much all summer, so that there may be worms of all ages in the apples. She has a strong preference for sweet apples, and has practically ruined the

crop of Talmans this year. Still she works in all varieties, sour as well as sweet, and causes hundreds of dollars' loss to the fruit grower.

We have consulted the authorities at the Vermont experiment station, and they frankly admit that no satisfactory way of dealing with it has been discovered. They say that considerable good can be accomplished by keeping hogs or sheep in the orchard to pick up the windfalls. These windfalls are usually full of apple maggots, and the hogs digest them out of existence.

Experiments are being made at various places in the United States, and we hope eventually to know some more effective way of dealing with this pest. But for the present we must rely on the practice of destroying the windfalls.





FRUIT CULTURE—VIII.

THE CURRANT.

THE fact that the currant is not only one of the most healthful of fruits, but also one of the hardiest and most productive, should ensure it a prominent place in every farmer's garden. Unfortunately this very fact causes it to be too often badly neglected. The average currant bush grows at its own sweet will, and the owner has little conception what an immense difference in the size and quality of the fruit would be made by thorough cultivation. The currant will thrive well in any well drained soil, coolness and moisture being necessary for the production of the best fruit. If the soil is too light and hot, the fruit will usually shrivel before maturing, and in such soil a mulch of some sort for two or three feet around the bushes is advisable. Good, strong one-year old plants will be as good as older ones, and cost less. Anyone, however, can grow his own plants by taking cuttings in the fall from the well-ripened wood of the past season's growth. Make the cuttings from six to ten inches long, plant in September in a row, rubbing off the lower buds when planted, and cover

when freezing weather approaches with straw or coarse manure, or the cuttings may be tied in a bunch and buried with about two inches of soil over them, and covered for the winter by coarse manure and then planted early in spring. By next fall they should make good, strong roots. (Fig. 83 and Fig. 84.) As the currant is a rank feeder, a liberal application of manures should be given; it fact no fruit will respond so quickly to generous treatment in this respect. Thorough and systematic pruning is necessary with the currant as with the gooseberry. This may be done very early in spring before the buds unfold. The fruit is borne on the previous year's shoots as well as on the older growths, but as a rule the younger the wood the finer the fruit. The superfluous young shoots should be cut out, and also all wood over three years old. There must be a constant renewal of strong, healthy wood, if good fruit



is to be grown. The old practice of growing in tree form is now discarded. Four or five main stems are best, and renew these from time to time by judicious pruning. If the young wood has made such rank growth as to make the bush straggly the ones that are left may be shortened back to advantage. Bushes treated in the way suggested will last for a good many years,



FIG. 84

but it is well to replant when over ten years old. Where it is desirable to rejuvenate old bushes, they may be cut off close to the ground, and, with well-rotted manure forked in around them, a vigorous top will soon be formed. The cultivation of the currant should be constant and shallow, as the roots run near the surface. From five to six feet apart is as close as the bushes should be planted. The insects chiefly troublesome to the currant are the familiar currant worm which is the larva of a saw-fly; the currant louse and the currant borer. The currant worm is controlled with great ease if the work is done directly the worms hatch. For these and the currant louse see F. Institute Report '96-'97, pages 175 and 192. The borer is the larva of a wasp-like moth, the eggs are laid on the stem from late in May till June. The borer cuts the pith up and down in the stem, and emerges as a moth again that May. Cut out and burn all infected stems in the early spring.

VARIETIES.—Of the red varieties the *Cherry* and *Fay's Prolific* are probably the two best, in white the *White Grape*, and in black, the old *Black Naples*.

THE GOOSEBERRY.

The gooseberry is essentially a northern plant, and makes much the same demands

on the soil as the currant does. It will be found most successful in a rich and strong clay loam, and will thrive, like the currant, in partial shade, providing that it gets the necessary manure. Well-rotted cow manure is probably the best fertilizer for the gooseberry, supplemented with a dressing of hardwood ashes or muriate of potash when fruiting time arrives. Generous treatment in this respect must be given to get fine fruit, as, like its relative, the currant, the gooseberry is a gross feeder. Propagation by cuttings is less successful than with the currant, but those who wish to grow their own plants can easily do so by the simple process of "layering." If a large number of plants are required the old bushes should be cut back almost to the

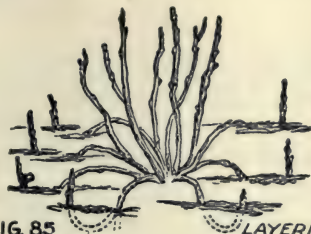


FIG. 85

LAYERING

ground in the autumn. About July 1st, when the bush has thrown up a large top of vigorous young shoots, earth is mounded up round the bush, leaving only a few inches of the tips exposed. In the fall the majority of the new shoots will have rooted and may be removed and planted. If only a few plants are required a few of the lower shoots may be bent down about July 1st and covered with earth except the tips. Or the suckers which spring up round the bush may be transplanted. Thorough pruning is emphatically essential to success in gooseberry culture. Fruit is produced from all parts of the bush except very old wood and the new growths. But with a vigorous growing bush from a third to one-half the wood should be annually cut away. The best fruit is borne on one year old wood,



and the aim should be to continually remove the older wood, and have a sufficient number of these strong healthy one year old shoots. It may be said of the gooseberry, as it may be of the grape vine, that the special method of pruning is of less importance than the fact that pruning must be regular and vigorous. Whether the bush system or tree system is followed, training to spurs or to long shoots, the important thing is that there should always be left a good supply of bearing wood, but not a tangled-up affair with a network of wood that can only produce a small and inferior class of fruit. The distance of planting should be the same as that of currants, and the cultivation thorough and shallow. Mulching will undoubtedly pay in hot seasons. Unless the owner is prepared to give great care to his plants he had better confine himself to the American varieties, as the larger Eu-

ropean kinds are particularly subject to mildew.

VARIETIES. — *Downing*, a vigorous and productive variety, bears fruit of a whitish-green color, smooth skin and good quality. *Pearl* is very similar. *Houghton*, a slender grower with red fruit, somewhat smaller than the other varieties named. Of the European gooseberries, *Industry*, a large dark red, and *Whitesmith*, a large yellowish-green, are recommended. A large number of remedies have been suggested for mildew of the gooseberry, but by far the best is the application of potassium sulphide (liver of sulphur), at the rate of one ounce to two gallons of water. This should be applied directly the buds swell, and at least twice more at intervals of a week or ten days. The currant-worm, which attacks the gooseberry with equal readiness, is referred to in the chapter dealing with currants.

RED RASPBERRIES AND BLACK CAPS.

These valuable fruits are so common throughout Ontario that little need be said as to their great value. In the canned state for winter use there is no fruit which retains so delightfully the freshness and aroma of the ripe fruit as the red raspberry. It is a veritable whiff of summer which follows the opening of a jar of "*Cuthberts*" in mid-winter. There are three types of the red raspberry now in general cultivation, those from the European wild raspberry, such as *Antwerp* and *Franconia*, those developed from the American wild raspberry, such as *Cuthbert*, and the hybrids, such as *Shaffer*. The European varieties are less hardy and more likely to suffer from the hot sun in this country. Many of the hybrids are marvellously productive and vigorous, but the fruit is usually soft and the color unattractive. The raspberry is a biennial as far as the cane is concerned, fruit being produced on the cane which was grown the

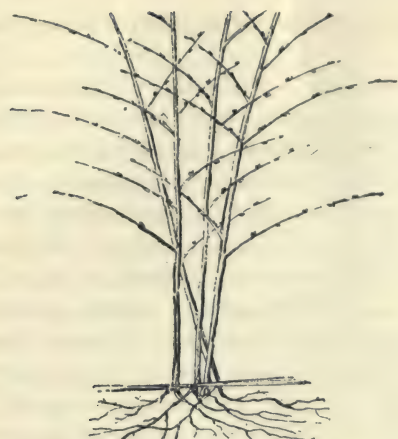
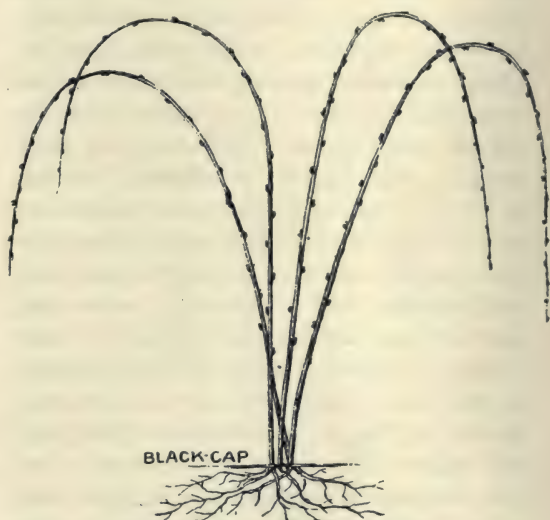


FIG. 87 TRIMMED BUSH.

previous year. In other respects the plant is a perennial, and with good care a plantation will last profitably ten or twelve years. A deep rich and moist sand is the most suitable soil for the red raspberry. The black-cap will thrive equally well on a fairly heavy clay loam, but in any case the soil must be well underdrained and the reverse of compact, for, of all fruits, the raspberry is the first to suffer from an excess of moisture and from drought at the ripening period. Vigorous shoots of the previous year's growth are the best plants to set, and in all cases they should be cut back to eight inches high after planting. In June the young shoots may be transplanted, if the work is done carefully in damp weather, but the older plants are preferable. If cultivation in rows is desired the plants should be set three feet apart and the rows six feet apart. The red raspberry, however, throws up such a large number of suckers, most of which have to be cut away, that a good practice is to plant five feet apart, and cultivate both ways. In this way, not only are the superfluous canes kept down more easily, but a finer quality of fruit, and just as much, will be produced. If fall planting is done the plants should be set out by the middle of Septem-

ber, and well mulched on the approach of winter. The question of pruning is an important one with the raspberries, and one on which a great difference of opinion exists. Great stress used to be laid on the value of summer pruning, and for the black-cap it is all right. The black-cap propagates itself by rooting at the tip, and its efforts are bent in the direction of making strong canes. Pinching back the young canes, therefore, when about two feet high will have excellent results. The cane will soon throw out a number of laterals, and a self-supporting strongly-branched bush will result (see Figs. 87 and 88). With the red raspberry the case is different, the pinching back of the young canes induces the plant to produce more suckers, and the laterals, which are eventually thrown out, are often weak and get killed back during the winter. Cultivate shallow and often during the summer, letting the canes grow their full length. In the late fall cut out the old canes which have fruited, and in the spring remove superfluous canes, leaving only four or five in a hill, and cut back the remaining canes to a height of about three feet. The work of



BLACK-CAP

FIG. 88 UNTRIMMED BUSH.

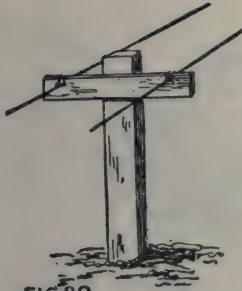


FIG. 89
Trellis for berries.

removing dead, and even superfluous, canes is usually done with more convenience in the fall, and there is practically nothing in the idea that by leaving them additional protection is afforded to the plantation. In districts where the cold is so severe that the raspberry will not stand without winter protection, the pinching back of the young shoots when not more than eighteen inches high may be practised. A low bush will be formed which will be covered with the snow.

Or bending down and covering may be done. Before frost comes remove the canes as suggested above, leaving about four canes to the hill. One man with spade or shovel then removes a little earth from the base of the plant, the other presses down the canes

with a fork, and the first man puts earth enough on to hold them in place. Such canes must be carefully taken up in the spring when danger of frost is past, but not left long enough to start growth. If such a practice is adopted it will be necessary to put up wire trellis to support the canes. A convenient kind in which the wires are easily removed is shown in Fig. 89.

If covering is not practised where the winter is severe, but reliance placed on a deep covering of snow, it is important to pinch back the canes early. Figs. 90 and 91 will show how to get a short sturdy bush with good laterals.

VARIETIES.—Black—*Souhegan*, *Hillborn Gregg*. Very promising new kinds are, *Older*, *Conrath*, *Smith's Giant*. Red—*Marlboro'*, *Cuthbert*. Yellow—*Golden Queen*. The best purple variety—*Shaffer* and *Columbia*.

INSECTS.—The raspberries are fairly free from insect pests of a very destructive character. The snowy tree-cricket occasionally slits the canes, depositing in the pith a number of yellowish, cylindrical eggs. Such canes can be removed and burnt. The young crickets feed on plant lice, so they probably do as much good as harm. The crown-borer and cane borer are sometimes injurious, but infected canes can be readily



FIG. 90
Root-gall of raspberry.



FIG. 90
Well pruned.



FIG. 91
Poorly pruned.

seen and should be removed and burnt. The small green larvæ of the raspberry sawfly are frequently injurious to the foliage. These can be destroyed by an application of hellebore, one ounce to three gallons, or with Paris green. Of diseases, the two worst are *anthracnose* and *root or crown gall*. The former, a fungus disease, attacks all parts of the plant above ground, showing on the young canes in grey blotches and discolorations, leading to weakness of the cane, which sometimes dies before fruiting, or on which the fruit is poor and shrivelled. Bordeaux mixture will assist in checking this disease, but it is well in small plantations to at once root out and destroy all sickly canes.

The cause of root or crown galls is very obscure, and one can only advise the rejection and burning of all plants so affected at planting time.

THE BLACKBERRY.

Much of what has been said as to necessary conditions in successful raspberry culture is equally true in its application to the culture of blackberries. The hardy, vigorous nature of the plant enables it to survive under very unfavorable conditions, and for this reason sufficient attention is not always given to its real needs. It will thrive on a heavier soil than the raspberry, but moisture is essential, and if the soil is not deep and porous it will be necessary to make it so by underdraining. Ripening late in the season, drouth is usually its worst enemy, and must be fought by proper drainage and cultivation if the magnificent possibilities of this fruit are to be realized. The blackberry, especially when in full bearing, will amply repay liberal treatment in the matter of manure. Propagation is by means of suckers. Planting may be done in the fall if a thorough covering is put on the newly set plants for the winter. In the spring planting, the last year's growths should be dug



and planted as early as possible, so as to give every chance for the production of good canes in the second year. Some of the most successful growers practice the hill method of culture, planting some seven feet each way. When in rows, eight feet between the rows and three feet between the plants is advisable. For the first two years, hoe crops may be put between the rows. As the rows fill out, and a larger number of suckers are produced, it will pay to reduce the numbers through the growing season by cultivation and hoeing. From the grower's point of view a superabundance of suckers may be regarded simply as weeds, robbing the plants of both moisture and food. In gardens, and where the ground is likely to become very dry or hard towards fruiting time, a pretty heavy mulching will yield excellent results. Summer pruning is absolutely necessary if a strong compact hedge is to be formed. The young plants should be pinched back when from two to three feet high; the cane will produce a number of vigorous laterals, which should be pruned back the following spring to about eighteen inches in length. Stress must be laid on the necessity for this early pinching back. Fig. 96-91 in the chapter on the raspberry shows the difference between the early and the late pinching back process. A top-heavy, awkward lot of canes will be the result of deferring this work, to say nothing of an undue amount of broken canes, scratched hands and torn dresses. Fig. 91A shows the neat, compact and properly pruned bush, and Fig. 92 a neglected cane.



It will be necessary to have a wire trellis where laying down canes for winter is practised; two wires are sufficient, even one will often answer the purpose, and in fact under most conditions the support of a wire will do much to keep the row in good shape.

Fig. 93 is an illustration of a well-kept plantation with the trellis support. The operation of laying down for winter was described under the raspberry. The varieties chiefly grown are *Snyder*, *Kittatinny*, *Lawton*, *Taylor* and *Early Harvest*. Of these *Kittatinny* is the best quality, fairly hardy and productive, though rather subject to "red rust." *Agawam* and *Snyder* are both

hardy and productive, though not very high in quality.

The only disease which very seriously or widely interferes with blackberry is the red orange "rust." This fungus spreads with great rapidity, and although systematic spraying with Bordeaux mixture may check it to a certain extent, the infested canes should be cut and burnt immediately they are noticed; a careful watch should be kept for the first sign of trouble, and only perfectly healthy plants set in. The diseased plants are easily distinguished by the peculiar golden color of the leaves in early spring, and the subsequent covering of the leaf with a mass of orange-colored spores.



Snyder.



Kittatinny.

PRUNING.

GRAPES.



ALTHOUGH out of the order of ripening its fruit, the grape is taken for the purpose of bringing out some of the mooted questions now engaging the attention of fruit growers as to pruning for inducing increased weight and fruitfulness.

In September, 1882, several members of the N. J. State Horticultural Society spent three days visiting the noted vineyards on both sides of the Hudson in and near Poughkeepsie. During this visit a call was made on Charles Downing, and the pruning of the grape as to the length of cane to be left in certain varieties of grapes found to be defective in setting of fruit on the bunch came up. Mr. Downing stated that in pruning the Diana the best bunches were produced on short spurs on a main cane at least 50 feet in length. Several other experienced growers stated that many of the Rogers' Hybrids, such as Salem, could not be successfully grown on main cane less than 20 feet in length. The pruning of the Eumelan also came in review. The Delaware was found to be pruned to long spurs or canes of from 20 to 25 eyes, as the best bunches were grown at or near the remote end of the cane. During this visit the experience of a few growers seemed to point to the fact that the time of the year when the pruning was done might influence the potency of vine in the production of size and weight of bunches as well as the position of fruiting eyes on the new growth of cane. Late pruning was thought to favor these characteristics.

The next step was that as the fruiting eye of the grape is a compound one, or as it has a small supplemental fruit eye by the side of the large ones, certain varieties, notably

the Niagara, produced the best and largest bunches on the cane from the secondary or supplementary eye, starting out after the first shoot had made some growth.

To-day the planting of mixed varieties near each other, or the pollenization of one variety by another is a great factor in the size, weight and setting of the fruit on the bunch. Some most successful cultivators of the grape follow the close or short spur system on a comparatively short cane, but place great reliance on pollenization by other varieties.

To be a successful pruner requires that the person performing it should understand the distinction between fruit and wood-buds, as the pruning instrument must have an educated mind to govern what it does.

PLUMS.

The advent of the Japan plum in its abundant and early fruiting has modified to a great extent the pruning of this fruit. The cutting must be severe, and a modification of pruning and of thinning of the fruit must be practised. It may safely be laid down as a rule in fruit growing that pruning the growing fruit by thinning must be followed, if large, handsome, good flavored and fruit free from rot is desired. It is claimed that late pruning of the plum after the fruit is set tends to the formation of a much larger number of fruit buds for the next year's crop, and the Massachusetts Experiment Station is now carrying on a series of experiments along this line. The best plum growers in the State of New Jersey follow cutting away at least one-half of the last year's growth at each pruning and severely thin the fruit remaining on the tree.—*American Gardening*.



TIMELY TOPICS FOR THE AMATEUR—VIII.

THE shortening hours of sunlight and the gradual, but surely lessening power and genial warmth of the autumn sun will cause the enthusiastic plant-lover to watch with mingled feelings of regret and sorrow the fast fading freshness and beauty of many summer favorites of the garden.

Autumn frosts may, however, be lenient in their usually destructive visitations and allow a few stray blossoms or bright leaves to lend their more than welcome appearance to aid in brightening up the lawn and garden during the chilly days of autumn. The pleasure that these bright and cheerful reminders of past summer-tide beauty bring with them may be considerably enhanced and prolonged, perhaps until early winter, if due care and attention is still devoted to autumn work in the garden.

The grass and walks should be kept trim and neat, all weeds, decayed foliage and blossom removed regularly and often, so that the cheerful and bright appearance of lawn and garden may harmonize and be somewhat in keeping with the glowing beauty and brilliancy of autumn foliage on surrounding tree and shrub. The removal of all dead and decayed foliage will not only

add greatly to the pleasant and cheerful appearance of lawn and garden, but will also materially assist those plants that are still struggling to maintain their bright summer-like aspect, despite the fast decreasing brightness and warmth of the haze-dimmed autumn sun.

The peaceful quiet days of October, when all nature seems to be in a restful mood—preparatory to the more turbulent and trying winter season—is a suitable time for the horticulturist to look back and take note of success or of non-success in matters pertaining to the garden that have occurred during the past summer season. This can be more easily done now, while there is still sufficient evidence of success or failure visible, than later, when all vestige of summer blossom or foliage is either blackened by winter frosts or buried beneath nature's protecting blanket of winter snow.

Many ideas of changes and improvements will doubtless suggest themselves to the observant and reflective plant-lover, many of which perhaps can be carried into effect much better during autumn and early winter than if left until the hurry and rush of spring work commences. All alterations in walks, flower beds or borders, or the



FIG. 1925. VASE OF HERBACEOUS PEONIES.
(Reduced.)

making of new ones, is best done at this season of the year, as the ground has time to settle firmly, ready for any planting required to be done in spring. Many of the hardier class of trees and shrubs can also be planted to advantage during the autumn season, if the ground is in suitable condition. Lilacs, and the hardier varieties of Spireas, such as *S. prunifolia*, *S. Van Houtii*, etc., *Diervillas*, *Philadelphus* (mock orange), *viburnums*, *Kerria*, *berberis*, *cydonia* (Japan quince), amongst others, can be safely planted during early autumn. In the colder and more northern sections of the country, spring planting is probably

advisable. A heavy mulch of long strawy manure should be applied to all newly planted deciduous trees, etc., early in the winter, but not until after the late autumn rains are over. The greater part of this mulch should be removed in early spring as soon as the frost is out of the ground. Tender varieties of spireas, deutzias, tamarisk, forsythias, herbaceous and shrubby hibiscus, etc., succeed best if planted in spring. Herbaceous perennials, with a few exceptions, succeed best if transplanted in spring, just as the new spring growth commences. Pæonies, German iris, dicentra (bleeding heart) and varieties of *hemerocallis* (day lilies) can be planted early in the fall if desired. These also will benefit if mulched during the winter with long manure, leaves, or any similar material.

It is always advisable, before removing or destroying any tree, shrub, or plant—or any prominent feature—from lawn or garden, to consider well what effect the removal will have on the surrounding landscape. By the removal of some tree or shrub that may have been thought ineffective, either from a picturesque or useful point of view, it often happens that some other object even more objectionable than the one removed may be exposed to view. In fact, in all matters pertaining to landscape gardening, whether on a large or small scale, always endeavor to see as clearly as possible the full and complete effect of contemplated alterations, or expected improvements, before commencing to carry them into operation. Regrets are useless after the axe or spade have completed their work of destruction, and will not remedy the mischief wrought or replace the object removed. Elaborate and well thought out plans of every minute detail regarding the utility and appearance of houses or buildings are considered absolutely necessary before commencing to

erect them, and even where almost immediate effect and results are to be attained, or alterations effected with comparative ease, the surrounding grounds are oftentimes laid out and planted in an haphazard, hit-or-miss kind of style, with perhaps very little regard for present effect, and even less thought and study given to the ultimate requirements and appearance of trees and shrubs that will take years perhaps to develop their suitability for the position they are to occupy. In carrying out alterations or improvements, even when the lawn or garden is quite limited in extent, ample scope will be found for an amount of study and thought, as well as a display of artistic taste oftentimes considered altogether unnecessary until ineffective and perhaps disastrous results prove conclusively the necessity for the exercise of care and discretion in these important matters.

Another important and often neglected point necessary to be successful with trees and shrubs is the matter of drainage. Many of the choicest and most beautiful of these, as well as many choice varieties of herbaceous and other flowering plants, have been discarded and rejected in many localities, because of their apparent want of hardiness, when the real cause of failure has been the want of proper drainage. It is a useless expenditure of time and money to plant expensive trees and plants on ground that is soured and soddened with stagnant surface water, or with cold water that soaks down in early spring, perhaps from higher ground in the neighborhood. This soakage or surface spring water can only be got rid of by sub-soil or under draining the ground, an expensive and laborious operation, but one that will repay its cost in a short time, if the work is thoroughly and efficiently carried out. Autumn and the early winter is the best time for digging and constructing drains, as it gives time for the soil to settle down somewhat during the winter.

The location for drains is best selected and marked out in early spring.

In small plots of garden, where perhaps a proper system of drainage cannot be carried out and the ground is wet, loose stones or coarse rubble can be used to advantage for temporary or makeshift drainage purposes. Dig out the soil first about 2 or 3 feet deep where a flower bed or border is to be made, or a tree or shrub planted, fill in about 10 or 12 inches of good sized stones or coarse gravel and rubble, over this place a thin layer of fine brushwood or coarse weeds and fill up the excavation with good soil as required. This method is often very beneficial to newly planted trees, etc., for a short time, but a properly constructed stone or tile drain will be found more effective and cheaper in the end than any temporary or makeshift system of drainage.

THE GREENHOUSE.

All greenhouse plants, except a few hardy and half hardy plants, should now be safe in their winter quarters in the conservatory or greenhouse. Hybrid perpetual roses in pots, required for winter forcing, succeed best if allowed to stay outside during a few sharp frosts. Six or eight degrees of frost for a few nights will help to ripen the wood, and this ripening process is a very desirable point to secure with H. P. roses and all hardy plants required for forcing in winter. Before taking the roses into the greenhouse prune them back rather severely, leaving only about an inch or two of the past year's growth. In about a week, or perhaps longer, the buds will show signs of growth. The plants should then be repotted, shaking carefully out about half of the old soil. Repot them firmly into well enriched, clay loam potting soil, water them thoroughly once and then withhold water at the roots until the soil shows signs of dryness. Syringe the

growth of the plants daily. Hybrid tea roses required for forcing can be treated in a similar way, with the exception that the ripening process must not be too severe, as hybrid teas are more tender than H. P. varieties.

Plants of *Hydrangea otaksa* and similar varieties of these useful half-hardy plants will require the protection of a shed or out-house for a few weeks before severe frosts, previous to being placed in their winter quarters in the basement or cellar, or under the greenhouse benches. The pretty little



FIG. 1926. SHRUBBY HIBISCUS. *H. ALBA PLENA*.

Rose of Sharon.

On Lawn of W. H. Gillard, Esq., "Undercliff," Hamilton,
Sept. 10, 1900.

free flowering hardy shrub, *Deutzia gracilis*, succeeds splendidly in the greenhouse in winter. Plants of this dwarf growing *Deutzia* can be taken up from the open ground, potted into ordinary potting soil, and in February or March will develop a wealth of their snow-white blossoms, with very little care and attention. Fancy caladiums, Tuberous begonias and gloxinia bulbs can be dried off gradually and placed away in their winter quarters. The caladium bulbs will probably winter best if left undisturbed in the pots, and the pots can be laid on their sides under the greenhouse

bench, not too near the hot water or steam pipes, however, to dry them out too severely. Rats and mice must be guarded against, as these unwelcome visitors are very partial to a banquet of high-priced caladium bulbs. Tuberous begonia or gloxinia bulbs can either be left in the pots and stowed away in a dry place in a temperature about 45°, or the bulbs and tubers can be shaken out from the pots, after all growth has ceased, packed away in sand or dry soil in boxes, and placed in any fairly dry, cool place, free from frost. A temperature of 45° to 50° will suit them very well.

If seedling cinerarias, calceolarias, or plants of pelargoniums, are still out in cold frames, careful watch must be kept on them, for, although these plants like a cool temperature, a very slight freezing injures them permanently. Violets that have been kept outside should be brought into the greenhouse if required for early flowering purposes, or they may be left out until later, or even until spring, if a sash is placed over them, and a little care and attention given them during the winter. Roses planted out on benches should be allowed to produce their flowers now as freely as possible. The disbudding of chrysanthemums, as mentioned in September number of *Journal*, will have to be attended to as required.

If mildew appears on roses or chrysanthemums, paint the stem or hot water pipes with a thick paste of flour of sulphur well mixed with water. Apply this mixture to the pipes, and on a chilly night, when a little extra heat will not hurt the plants, get up a good circulation of heat in the pipes sufficient to raise a strong sulphury smell through the greenhouse. If this extra heating process is repeated about once a week until more severe weather, it will effectually prevent the spread of this dreaded fungous disease. Sulphur must

never, however, be put on brick flues, or on stove or furnace pipes in the greenhouse, or anywhere so that it comes in contact with direct fire heat, as the fumes of burnt sulphur, even if very slight, will soon destroy a whole collection of plants. Flour of sulphur can be sifted finely on the foliage of plants affected with mildew, to advantage.

Purchase Dutch and other winter and spring flowering bulbs as early as you can. Select firm, clear looking bulbs of good medium size, in preference to large bulbs that are not firm and solid. Pot the bulbs into ordinary potting soil ; the top of the bulb should be just below the surface of the soil when potted. Water thoroughly once so as to moisten all the soil well and place the pots in a cool dark shed or cellar for a few weeks until the bulbs have made good roots, when the pots can be brought into the greenhouse as required. For bulbs required for forcing, a frame placed outside is a very good place to start root action. Pots should be covered about an inch deep in light soil or coal ashes and protected from severe frosts. A covering of sand or ashes will also benefit those started in a shed or cellar, as it prevents drying out. (For culture of bulbs see November number of *Horticulturist*, 1899.)

Early in the day is the best time for watering and syringing plants at this season of the year. A little fire heat will be beneficial in damp, chilly weather, even if there is no frost. *Coleus*, foliage begonias and similar plants often suffer from damping off, if the temperature is allowed to drop too low continuously. A temperature of 30° to 55° at night, and 60° to 75° in the daytime will suit a general collection of plants very well. Avoid extremes, either of heat or moisture. Close the ventilators early in the afternoon and avoid cold draughts on the plants. Keep the floors well dampened, it will obviate the necessity

of syringing so often, a process that is sometimes risky at this season when perhaps there is no fire heat and the weather damp and chilly. If you have no objection to the smell of raw tobacco, sprinkle some stems in places under the benches and renew the supply every week or two ; this will keep down green fly or aphids. Fumigating with damp tobacco stems is the most effectual method of getting rid of these pests, but unless carefully done, so as not to allow the stems to burst into a flame, there is risk of burning or scorching the foliage of tender plants. *Coleus*, *heliotrope*, and *Maiden Hair* ferns are very easily injured in this way. The concentrated liquid "nicotine" sold by seedsmen, is perhaps the best preparation of the kind for amateurs. It is cleaner to use, the fumes from it being less pungent and disagreeable than from raw tobacco.

Sufficient potting soil, sand and leaf soil, should be brought into the potting shed or cellar, so as to be in good condition for use during the winter. Secure a fresh supply of sod for potting soil for use next season. Sod should be cut three or four inches thick, taken from where the soil is loamy, and stacked up neatly. Two thicknesses of sod and one of well rotted stable, or cow manure, is the best nucleus for a potting compost obtainable. The layers of sod and manure, as mentioned, can be continued until a sufficient quantity has been secured. The sod should be stacked with the grassy side downward.

WINDOW PLANTS.—The window should be well furnished now with plants for autumn and winter effect. If a few geraniums have been grown on specially for winter flowering, and not allowed to flower during the summer, the window will look bright and gay with their showy trusses of bloom until the early winter flowering bulbs and other plants commence to flower. *Roman hyacinths* will be the

first of the winter flowering bulbs to claim a position in the window, followed later by varieties of narcissus, or a pot or two of the pink or blue varieties of the Roman hyacinths, as well as some of the later flowering Dutch hyacinths. The Von Sion narcissus (daffodil) is perhaps the easiest grown and most remunerative of the Narcissi family. The trumpet daffodils are also useful and pretty if a variety is required. Dutch hyacinths and some of the Polyanthus narcissus, such as Double Roman, Grand Monarque and Staten Island, succeed well in the window, not forgetting a few bulbs of the Narcissus Poeticus, or the improved variety Ornatus. The last two varieties I consider to be the gems of the Narcissi family. A nice pot of them when in flower has a strikingly beautiful effect in a window of mixed plants. A few jonquils and perhaps a few bulbs of the pretty blue flowering Scilla Siberica—the “Forget-me-not” amongst bulbs—will complete a useful list that will give a succession of flower from early winter until spring. These, with the more permanent occupants of the window, such as geraniums, cacti, begonias, etc., and perhaps a hanging basket, or a few hanging or bracket pots filled with some trailing plants that have occupied the window box, or perhaps a rustic stand outside during summer, will make a gay and attractive window during winter. Watch closely for the first signs of insect pests, especially red spider and green fly. Apply tobacco water for the last named pest, and syringe the plants infested with red spider as often as possible with clear water. Red spider cannot thrive if drenched with water occasionally.

FLOWER GARDEN.—Dutch and spring flowering bulbs should be planted before the end of October. No mulching is required for these until November, or perhaps later, according to the severity of the weather.

It often happens that the first frosts of autumn barely nips the foliage of dahlias, cannas, gladioli, or even the more tender *Caladium esculentum*, not sufficient to warrant the plant lover in rooting them up, whilst the second visitation of frost is sometimes severe enough to freeze unprotected roots and bulbs of these plants in the ground. It is a good plan to place a mulch of some kind around the roots of these and similar plants to ward off this second attack of frost, so that the tubers and bulbs may not be damaged. By doing this it will give them time to mature and ripen in a more natural way than if taken from the ground immediately after the first frost. They must not, however, be risked too long in the open ground, but must be dug up and removed to a shed, or out-building, where they will be safe from frost, and allowed to dry before being stowed away for the winter.

All flower beds or borders, as soon as vacant, should be given a coating of short manure and the ground dug up deeply, the surface being left as rough as possible. If the ground is of a stiff, clayey nature, throw it into ridges for the frosts of winter to pulverize and sweeten. Make the ridges so that the furrows between them will drain off all surface water quickly. By ridging up ground in the fall much time and labor can be saved in the spring, and better results attained the following season.

FRUIT AND VEGETABLE GARDEN.—Picking and storing fruit will be the principal operation in the fruit garden during October. Many of the early varieties of pears and apples will already have been picked and stowed away. Almost all varieties of pears are better picked before they are ripe, and ripen best packed and covered up closely in boxes and stored in a warm shed or out-building. If placed in the cellar to ripen the flavor and color of the fruit is greatly impaired, and if laid out on shelves or benches exposed to the air the fruit often

shrivels up badly before ripening. Late pears, such as Winter Nelis, Easter Beurre, and Josephine d'Malines, will be best left hanging on the trees until there is danger from frosts. Apples will keep best if left in open barrels or laid carefully in heaps in a shed or out-building. They can be kept in this way for a week or two, when it is best to cover them up to prevent over drying or perhaps shrivelling. Apples should not be put into the cellar until severe frosts necessitate their removal to safer quarters than a shed or out-building provides for. Old canes of raspberries and young useless growth should be cut out. If these are laid by they will come in useful to place on winter spinach beds later in the season. Fine brush wood is a great protection to spinach in winter. Manure, and fork lightly over, the ground amongst small fruit trees and bushes. A mulch of long manure afterwards will benefit them considerably.

Storing for winter will have to be attended to in the vegetable garden. Roots of all kinds can be pulled and covered up in temporary pits in the garden for a week or two. This will allow the roots to dry before being taken into the cellar. They will keep much better if treated in this way than if pulled and placed in the cellar or root house direct from the garden. Store them if possible on a nice day, so as to ensure their being placed in the cellar quite dry. Roots keep best during the winter covered with dry earth or sand, unless the cellar is very damp and close. A few artichokes, salsify and parsnips may be left

in the ground all the winter. They will eat much nicer in the spring than those stored in the cellar. Celery will require to be moulded or earthed up, or protected in some temporary way from severe frosts, until later, when it can be placed in earth or sand in the cellar. A narrow trench dug out in a high and dry part of the garden, where the surface water will not get into it, will keep celery splendidly during the winter. The trench should be only the width of a spade, and deep enough so that the tops of the celery are just below the ridge of earth thrown out. Place the celery carefully in the trench in an upright position, use plenty of the earth thrown out around and about the celery, packing it carefully with the hands. Cover a few boards over to keep out the rain. A very slight covering of leaves or long manure placed over these later on will be found sufficient to keep out frost, unless very severe. There is more danger of celery rotting in trenches from being too closely packed than there is from its being frozen. Cabbage and cauliflower are best covered up or pitted out of doors, as they are considered to be a source of danger and disease to the inmates of a dwelling house if kept in the cellar during winter.

Manure and dig up roughly all ground as soon as the crops are taken off. Throwing the ground into ridges about 3 feet apart will be found to be of great benefit to heavy, clayey soils.

HORTUS.

Hamilton.

THE HANRAHAN SYSTEM of cold storage has been adopted by the Minister of Agriculture for Ontario for the forwarding of tender fruits to Great Britain. One car load of early apples and pears left Grimsby for Manchester on the 25th of August, and

several carloads of pears, peaches, tomatoes, etc., followed on the 15th of September. All these consignments go forward to Manchester by the Manchester liners. A cablegram reports that the first car load arrived in perfect condition.

SWORD FERN.

These Ferns are suitable for window culture, doing well in the dry air of the house. Three species are in common cultivation;



Nephrolepis exaltata, *N E Bostoniensis* and *N cordata compacta*. These are the common sword ferns, the Boston fern and the latter, a dwarf variety with upright, narrow leaves, which is much used in fern pans for table decoration. All do well in a compost of loam, leaf mold and sand. They should

never become pot-bound and require an immense amount of water. All are useful for hanging baskets, wire baskets lined with growing moss being

used, filled in with soil in which to set the plants. New shoots start out through the moss and soon the basket is hidden. The common variety has leaves from 2 to 4 feet long, while the Boston fern grows to a much greater length. The plants increase rapidly, the new ones growing from the tendrils which run out from the old root; when they remain on top of the soil they should be layered to hasten growth. Some sorts have tubers which many suppose can be used to propagate new plants, but they are simply feeders or reservoirs of moisture for the use of the plant. My neighbor removed all she saw when repotting a new fern, planning to raise many new plants; she not only failed in her purpose; but killed the old plant. Thrips and scale are the only enemies of these plants and they can be cured by smoking for the former and washing the stems for the latter.—*Park's Floral Magazine*.

HIGH FEEDING FOR PLANTS.

INTERESTING experiments have been carried on in plant feeding by G. M. Sherman, of Hampden Co., Mass. His plan in brief is to supply liquid fertilizers by means of a porous jar buried a foot or more beneath the surface and filled from time to time through a tube projecting above the ground.

The roots of the plant or tree collect around the porous jar and absorb the fertilizers. The illustration shows a small apparatus in operation. Patent has been applied for. Mr. Sherman's experiments have been mostly confined to rose bushes, which in many cases appear to have made enormous growth, shoots extending several inches per day in some cases. The inventor expects the principle to prove of great value in cultivation of all kinds of fruit and shrubs and

will attempt to have the theory thoroughly tested at the state experiment station.



FIG. 1928. APPARATUS TO FORCE RAPID GROWTH.



FIG. 1929.

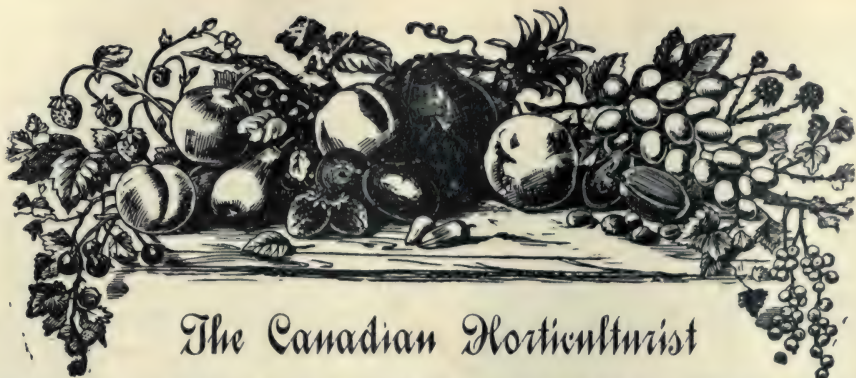
The above photo shows a Crimson Rambler rose, climbing up the residence of Mr. W. R. Wright, Picton, Ont. The rose was a premium to Mr. Wright from the Picton Horticultural Society several years ago, and has been very much admired, the profusion of bloom being so great, that one could hardly count the endless number of roses.

NARCISSUS.—Of all bulbous plants these are most healthful and varied in form and color. They always bloom if given anything like proper attention. In my window now are three sorts. Paper-white, fresh and dainty, comes first. On the pots I find written "Planted Sept. 27th." Many of them bloomed at Thanksgiving, full and sweet. The hyacinths planted the same day are only little green buds above the soil. Some of

the narcissus clusters have fifteen waxen cups, and each bulb yields two or three clusters. Another narcissus, blooming a little later on is larger and quite as sweet, and pure waxy white. The Chinese lilies put in water on the day the narcissus were planted, are in full bloom for Christmas, a creamy white with a deep, large golden cup, and short, roundish petals.

Planted outside in October the narcissus blooms in early spring, some sorts with the crocus; others with the first rose buds. The bright yellow ones are lovely, there are white double ones that look like Cape jasmines. The varieties are almost countless. —*Park's Floral Guide.*

RUDBECKIA, GOLDEN GLOW.—Talk not to me of the glory of chrysanthemums produced by care, for no golden chrysanthemum was ever more beautiful than the double puffy Golden Glow. The root which was planted last year was given a stake to which the stalks were tied. Lo, along came the west wind and snapped off the stalks and we had no blossoms. The roots were not covered during the winter, one which was so severe that everything was killed but Golden Glow. It sent up dozens of stalks in the spring and made a rapid growth. Today it is eight feet high with one hundred buds and blossoms. We did not stake it this year and the long, wiry stems, crowned with a ball of concentrated essence of sunshine, toss and nod most gracefully. Each flower is borne on a stem by itself which makes it very satisfactory for cutting. The foliage is scant and does not crowd up the flower stem. The buds are not pretty and give no promise of the great beauty of the full blown flower. For a most satisfactory and highly ornamental hardy perennial, one cannot too highly recommend Golden Glow. —*Park's Floral Guide.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.
 SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

FRUIT INSPECTION.—In answer to our inquiry, the Minister of Agriculture writes under date of August 20, 1900, that neither the Fruit Inspection Act, nor the Barrel Act, have yet become law.

THE EARLY MICHIGAN PEACH was shipped at Maplehurst August 22nd. It is a very pretty high colored variety, of the early clingstone white flesh class, rather small, and not a good keeper. Firm samples laid up on a shelf for two days began to rot.

ROSS SEEDLING PLUM.—On the 18th of August a box containing about a dozen samples of this plum was sent the writer to Grimsby by Mrs. J. T. Ross, 51 Main street east, Hamilton. The plums were very fine, about equal to the Bradshaw in appearance, of which they are claimed to be a seedling. We know of no plum of that

season to really compete with it, unless it be the Abundance, which is of so different a character that it can hardly be compared. The quality, however, is inferior to that of Bradshaw.

THE STANDARD APPLE BARREL.—The barrel sanctioned last year contained 103 imperial quarts, or 107 quarts. The new standard barrel, asked for by our association, holds 96.51 imperial quarts, dry measure, or 100 quarts. The staves are $1\frac{1}{2}$ inches shorter, which is the principal difference.

SMITH'S SEEDLING PEACH, reported in our report for 1899, p. 50, seems to commend itself more and more. Mr. R. T. Smith brought a basket of the peach to our office on the 24th of August. All the samples were equally fine, measuring uniformly about $2\frac{1}{2}$ inches in diameter, round, with

red cheek, white flesh, freestone, and of excellent quality. We know of no peach of its season to compare with it. The skin separates from the flesh very easily, so that it may easily be peeled by the hand without using a knife.

AMERICA.—Samples of this new Japan plum of Burbank's were sent us August 21st by A. M. Smith, St. Catharines. This plum is a bright carmine color, nearly as large as Burbank, and of superior quality. It should take well in this market. Japan plums are much hardier than most people suppose, and may be grown wherever the English varieties thrive.

THE INCREASE OF CANADA'S EXPORT TRADE with the United Kingdom is certainly a very important subject with Canadian producers of food products, and we are glad to receive a pamphlet from H. G. McMicken, London, England, on the subject. A company is being organized to work for the extension of this trade on safe lines, to be known as The Canadian Industries and Food Supply Association.

A MEMORIAL NOTE may be permitted us just here, if we record the passing away on the 16th ult. of another of the few remaining constituent members of our Association, in the person of Mr. Chas. E. Woolverton, alluded to above, at the age of 80. One who sat about the table in the Board of Trade room in Hamilton in the year 1860, along with D. W. Beadle, A. M. Smith, Judge Logie, Charles Arnold and others, and who has been one of those unassuming yet powerful factors in the advancement of our interests.

THE HEAVY WIND STORM of the 11th and 12th ult. committed terrific havoc with the fruit orchards of Ontario, and indeed those of a large part of the apple belt of our

Continent. Immense quantities of pears and apples were blown down, and at first we feared most serious losses. But on examination we find that the larger part of the fruit blown down is wormy and defective, and would have been unfit for shipment. The remaining fruit will mature better for the thinning, and there will be less poor stuff to handle and throw away.

SPECIAL EXPORT TRADE.—The Hon. John Dryden is taking an especial interest in the development of the Ontario fruit trade. Hitherto the business has been hindered by the miserable cold storage accommodations both on rail and steamboat, but Mr. Dryden has prepared a special automatic cold storage car for use on the Grand Trunk, and special cold storage compartment of the same kind on board the steamers. The line chosen for the first shipments is that to Manchester, and should the results prove equal to expectations, other lines will be fitted up.

The Department has already sent forward two carloads, and a third will follow soon. We shall gladly make public the results when fully known.

THE INDUSTRIAL FAIR was well patronized by the fruit men, and thanks to the energetic representative of our Association, Mr. W. E. Wellington, the fruit building becomes each year increasingly attractive to visitors.

Our own experimental exhibit was superintended by Mr. W. M. Orr, of Fruitland, a gentleman well fitted by his experience at the World's Columbian Exhibition, for such work. The following extract from the Canada Farmers' Sun may be of general interest :

During our visit to the fruit building an effort was made to secure information as to the probable price of winter apples, but the success attending this effort was not particularly marked.

W. H. Orr, of Fruitland, said that he had heard 60 cents a barrel, the growers to do the picking, spoken of. One man who had 2,000

barrels to sell had offered to take 75 cents. In grapes for domestic use he counted on from \$20 to \$30 a ton as the ruling price. Speaking of the show, Mr. Orr said: "This show is two weeks too early for all but the very earliest fruit. It is impossible to get color so early in the season. If the show could be even ten days later it would add very much to the size and appearance of the fruit exhibit."

In the Fruit Department of the Fair were shown boxes with early apples and pears done up in wax paper for shipment to the Old Country. "If we can but get the price that we got last year," said Mr. Orr, "it will pay us to take even this trouble in preparing fruit for shipment. We can hardly expect, however, to get a very large market unless means be devised for shipping at less cost."

One of the best features in the fruit department was the display made by the different Ontario experimental fruit stations. This display occupied one large table and the fruit was of splendid quality. One section was devoted to exhibiting crabs and Duchess apples grown on St. Joseph's Island. "That exhibition," said Mr. Orr, "was quite a surprise to us. A great many people had no idea that such good fruit could be grown so far north."

There was found standing quietly in a corner of the building given up to fruit one whose name is but seldom heard by the public. At the same time few statesmen have done more towards bringing Canada to the stage of development which has been reached. This was A. M. Smith, of St. Catharines. Some 38 years ago that gentleman, acting with the father of Linus Woolverton, set out the first peach orchard in what is now the Niagara fruit district. This orchard was established at Grimsby on the farm occupied then, as it is occupied now, by the Woolverton family.

"Five or six hundred trees were set out at that time," said Mr. Smith. "People in the neighborhood said we were crazy for doing it; that we would not know what to do with the fruit when produced. We also set out in a nursery plantation some five or six thousand young peach trees, and it was again said we were wasting our money—that, if all these young trees grew we would be unable to find a market for them. But I had faith in the venture. Before starting to grow peach fruit in Canada I had imported peaches from Lockport, N. Y., and sold them in Canadian towns. I felt sure if a market could be found for American fruit one could be found for Canadian fruit. When our trees began bearing we induced the express company to open an office at Grimsby, and we commenced shipping our fruit to Hamilton, Galt, London and Guelph, and other towns. From our first orchard we sold some peaches up to \$4 per bushel, while a common price was from \$1 to \$3. When we netted \$300 from one acre of peaches in a single year the movement began to spread with marvellous rapidity. It spread even to Winona, where it was supposed the soil was such that would not grow peaches, but it was soon found out that this land would grow the trees as well as that about Grimsby. The late Mr. Woolverton and myself

also established a nursery for the propagation of grape vines. W. H. Orr, of Fruitland, set out what was perhaps the first vineyard for the production of grapes in a commercial way. He sold his first grapes in Hamilton at 8, 9 and 10 cents per pound."

"I only wish," put in Mr. Orr, who was standing alongside, "that we could get the same prices now. We made more from one acre then than we can from ten acres to-day."

"Of the extent of the Niagara fruit industry," Mr. Smith went on, "all the world knows more or less to-day. At St. Catharines, where I helped start the first canning factory, there are five factories in existence to-day. From one station in the Niagara fruit district, E. D. Smith is now shipping three or four carloads of fresh fruit daily, while a neighbor of his is shipping two or three cars. Taking the whole Niagara district, at a conservative estimate, the value of the fruit crop in one year will amount to \$2,000,000. All this has been accomplished within one generation."

APPLES IN BARRELS.—The following instructions for grading and packing apples were sent us by Mr. Ernest Heaton, Toronto:

1. Take barrels to the orchard, hand pick the apples, and fill the barrels from the baskets as they are brought from the ladders, putting the baskets down into the barrels, and turning them over with great care. Apples should not be picked on a hot day, nor if the apples are wet. Be particular not to pack any apples which have dropped from the trees. Haul to the barn immediately, and store the barrels on a dirt floor, if possible, as it is cooler and damper and better for the apples. Barrels should not be left in the orchard exposed to the hot sun and wet weather.

2. When you are ready for packing, take a table ten feet long by three feet wide, with side boards about eight inches high. Line the table with carpet or canvas, to prevent bruising the apples. Pour out three barrels on the table at a time. With two men to sort, use six baskets. Make at least three grades of apples, putting each grade into a separate basket.

3. First grade apples must be hand picked from the tree, of good color and of normal

shape and form, and at the time of picking free from the action of worms, defacement of surface and breaking of skin. The Ben Davis, Baldwin, Greenings and other varieties kindred in size, must not be less than two and one-half inches in diameter. The Russet, Jonathan, Spitz and other varieties kindred in size, must not be less than two and one-quarter inches in diameter.

Second grade apples must be hand picked from the tree and not smaller than two and one-quarter inches in diameter. The skin must not be broken or the apple bruised. This grade must be faced and packed with as much care as number one grade.

Third grade apples should never be packed for export.

4. To prepare the barrels. Tighten all hoops, nail them well, and clinch all nails on barrels. Mark on the end of the barrel with a clear stencil, (1) Shipper's name. (2) The shipper's brand. (3) Grade of fruit. (4) Variety of fruit.

5. The barrel should be placed on a solid plank, and continually racked as each basket of apples is placed in the barrel. A piece of timber should be used for this purpose about two inches thick, and of such circumference as will fit nicely in the barrel without leaving too much space; it should be well padded to prevent cutting or bruising the apples.

6. In filling the barrels with different grades of apples, pick out well colored apples of normal shape and standard size, cut off all stems and set or face the heads of the barrel with them, leaving the very largest apples of each grade for the middle of the barrel, so that if a buyer turns out a barrel he will find the best apples in the centre.

7. Fill the barrels so full that the apples are level with the top of the staves, using the same grade of apples for tailing as are used for facing the barrel.

8. Press the apples first with the padded block, so tight that not an apple will move

in the barrel, and then put in the head, nail hoops and securely fasten the heads with strips or liners.

9. Apple barrels when being hauled to the station should never be loaded on end, for in all cases it is bound to slacken the barrels.

SUMMER PLANTED STRAWBERRIES.—Just as soon as these first runners are nicely rooted, which hereabouts is in July, the new bed may be made. Lift the plants with some little ball of earth attached and set them in the new bed, and with a good watering afterwards the plants will take care of themselves. But when plants are purchased and have no soil with them, much more care in watering and shading is necessary, especially when the planting is in the heat of summer. I do not think much is gained in setting out runners without soil attached at any time but early spring. The chief object of summer or fall planting is to gain a bed for fruiting the next spring, and this cannot be done unless the plants make a good growth after they are planted. Plants removed with a ball of earth attached, or those grown in pots, will produce a fair crop the next season. To get these plants as vigorous as possible is the object desired.

A bed of plants set out in summer and encouraged to grow nicely will give a fair crop of large berries, perhaps not as full a crop as an older bed, but still a very satisfactory one. It may be let alone for another season, but strawberry beds should not be permitted to stand longer than two years. Indeed when plants are set in spring it is quite common to let them bear but the one crop, in the spring following, thus setting a new bed annually. Better results in the way of profits are obtained under this system than under the old one of permitting the beds to remain for several years.—*Gardening.*

QUESTION DRAWER.

A Seedling Peach.

1182. SIR,—I send you two samples of a fine seedling peach which has fruited this year for the first time. The tree is vigorous, hardy, and productive.

Jarvis, Ont.

T. H. L.

This is a magnificent yellow fleshed peach, equal to the Early Crawford, which it much resembles in appearance and quality, only that it is a clearer red.

Seedling Plums.

1183. SIR,—I am sending you two samples of plums grown from some suckers given me by a lady in Ottawa, which have borne heavily the last three years. Would you please give me the name of them or name them for me if they are not a known variety, so that I may exhibit them.

Ottawa.

W. H.

Few people except nurserymen seem to know that named varieties of fruits are propagated by either budding or grafting on some seedling stock, and that suckers from the latter will be of the nature of the stock and not of the graft.

These Plums are Seedlings, too small to be of commercial value at this season (Sept. 12th), and not worth adding to the list of named varieties.

A Cedar Hedge.

1184. SIR,—What is the proper time to plant a cedar hedge, and what is the best way of putting it in, and what size plants to use? The above will much oblige yours truly,

Seaforth.

BEATTIE BROS.

Evergreen may be removed at almost any season of the year, providing the removal is not followed by excessive drouth. The sap of these trees is gummy, and if once dried the tree will not recover. May or June is usually counted a good time, because the rains which follow settle the ground, and the trees will become established before the summer drouth.

We would advise small in preference to large size trees; for if a cedar or spruce tree

once becomes stunted, it rarely ever recovers itself. We would advise buying cedars (*arbor vitae*) that were about two feet in height.

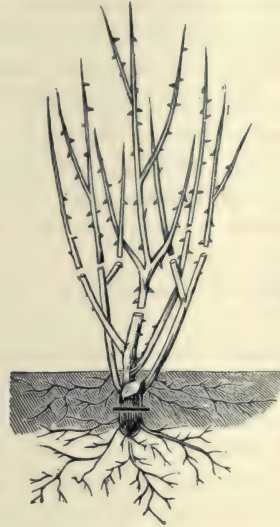


FIG. 1930.

Pruning Roses.

1185. SIR,—Kindly tell me how to winter and prune my outdoor roses. They have been set out two years, and I have tried bending the branches to the ground and covering them with straw for protection, but many of the branches are now becoming too large to be bent down, and those which were bent over have never fully recovered their upright form. How can I protect them this winter without making them unsightly? Should they be pruned, and if so, in what way? Many of the branches appear to be quite dead.

Elgin.

J. R. DARGAVEL.

H. P. Roses, which we presume are referred to by our correspondent, need to be well pruned back every year in order to encourage the growth of an abundance of young wood, for bloom is produced upon the young growth. They should be pruned first in the spring time when the growth is nicely started. We give an illustration showing about how this work should be done. If two or three good buds are left upon each branch they will be all that are

required. After the blooming season in June, it is well to cut back the summer growth again in order to encourage late growth of wood and thus produce flowers later in the season. If the rose bushes are thus kept freely cut back our correspondent will not have much difficulty in protecting them during the winter. He can easily pile straw or leaves about them to protect them from the cold, if such protection is necessary. In the Southern parts of our Province the H. P. Roses are perfectly hardy without winter protection.

Fruit Markets.

1186. SIR,—How is the grape crop with you? I hear that in Essex it is poor, but I have never had better prospects than this year. Is there any paper published containing reliable fruit markets, with hints as to the prospective prices? The Toronto papers do not give these in much detail. Of course you in the fruit centers know what the fruit is worth, but people like myself, living away from the fruit centers, have to do a good deal of guess work. I would like some advice as to reliable consignees for my fruit.

Listowel, Ont.

A. J. COLLINS.

The prospect for grapes is fairly good in the grape growing sections of Ontario,

and so far this season prices have been quite satisfactory, ranging from 1½c. to 2½c. per lb., and even considerably higher at the beginning of the season. We would refer our correspondent to the Montreal "Trade Bulletin" as a very useful paper on the fruit markets of that city, which is one of the best centers for large consignments. In this paper there will also be found the names of several commission merchants, but we would not presume to take it upon ourselves to advise our correspondent as to which of them he ought to choose.

Grimes' Golden.

1187. SIR,—Why did you give up growing Grime's Golden apple in Ontario? I have a lot that I intend planting in spring. Is there anything wrong with it?

Vernon, B. C.

R. T. F.

The Grimes' Golden is a good apple for the home garden, but lacks in two important points to be worthy of a place in the commercial orchard; (1) it is too small, which of late years is more and more considered by buyers, and (2) it lacks the color which attracts foreign buyers to our apples.

Open Letters.

Spirea "Anthony Waterer."

SIR,—In the description given by Prof. McCoun, he states "Origin, Europe; height 1 foot." The height given by him will mislead many, who do not know the shrub when planting it out, because it will grow to the height of six feet and over. I have one I planted in the spring of 1897. It was about 15 inches when I planted it. It is now five feet high and about ten feet in circumference. Ellwanger & Barry say "height from 5 to 8 feet." It is a lovely shrub and should be in every garden. Give it room and it then forms a perfect bush. As soon as the first blossoms are over they should be cut off with a pair of shears; if left on they give the bush a ragged appearance. It will then flower more or less till the end of October. Plant it where it is shaded during mid-day, because if exposed to the sun all day the flowers quickly lose their bright color.

South London.

CHAS. JAS. FOX.

Floriculture at Hamilton.

SIR,—In your last issue Mr. R. Cameron, of Niagara Falls, asks: "Is the Love for Flowers Diminishing in Hamilton." In reply I will answer. No sir, and I am perfectly satisfied that Mr. Cameron would say "No sir," if he would see our market during the week or on a Saturday. Of course, no one could help but notice the slim attendance at our recent flower show, but the reason is simply this, we have a flower show in our market three times every week, and the writer knows hundreds who visit the market for nothing else but to see the beautiful display of some of the best flowers that are grown. And of course, it is but natural to think that no one will pay to see a flower show when a most beautiful display is made on our market days. When our nurseries vie with each other, who can make the best display. The directors of the Hamilton Horticultural Society might take the hint and use the money now expended for flower shows for some other purpose. Flower

shows never will be a success in Hamilton, for the reasons already stated. The professional nurseryman will not go to the trouble of making an exhibit at any show where an admission fee is charged, and he himself does not get any cash benefits in prizes. The sales do not pay him for his trouble, and he knows where to find the buying public—in the market—that is the place where he gets his dimes. The Hamilton Horticultural Society is doing a good educational work in scientific floriculture, it is spreading its good work far and wide, long may it continue to do so, but no organization can make a flower show pay in Hamilton, when (as I stated above), there is a free and splendid show three times a week which draws out the best as well as the worst classes to see it.

23 Simcoe West.

C. HIRSCHMILLER.

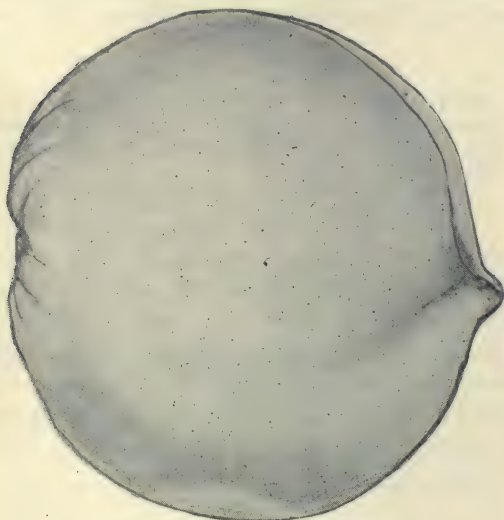


FIG. 1931. EARLY CRAWFORD.

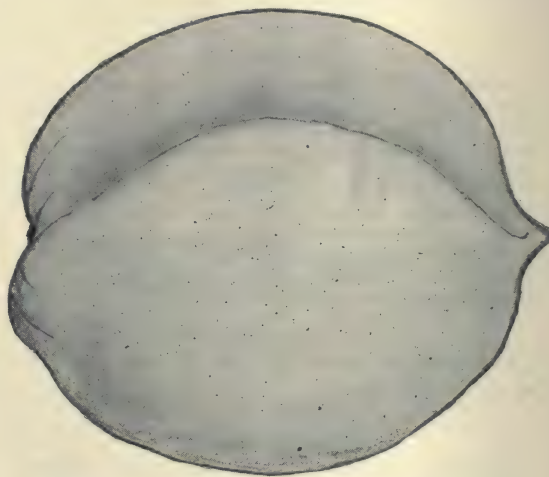


FIG. 1932. LATE CRAWFORD.

Wrongly Named Varieties.

SIR,—Are the varieties of our peaches as well known to the public as they ought to be? It would seem not, from the fruit that we see getting first prizes. We will only mention one instance, the fruit shown at the Toronto Industrial Exhibition for Late Crawfords and got first prize, the fruit being then ripe on the 4th of September. Can it be possible that the fruit could be Late Crawfords, when in the meantime the Early Crawfords were only commencing to ripen. I was led into a discussion over the plates there exhibited of Late Crawfords, with judges and prominent fruit growers, and I would like to see the case thrashed out, and to begin with, I will start the ball rolling by sending you, Mr. Editor, two cuts, one the Early Crawford, the other the Late Crawford. I also send you specimens of the fruit, which I will vouch for being correctly named, and the fruit was picked from trees about thirty* years planted. The two varieties are growing side by side and not over one hundred yards back from the Niagara River, and on rich

early sandy soil. You can see from this that the difference could not be on account of situation or climate, so what can it be?

I am of the opinion that the peach varieties are degenerating, or running into one another from the want of proper care in selecting seeds for stocks, and buds to be used on such stocks.

It is said that the Crawford peach when first introduced in England, were of a dry mealy texture. They are certainly the reverse to-day. They are rather soft to ship, particularly the Early Crawford. The later variety is much more solid and coarser in the grain or flesh.

We hope to hear from some others on this subject.

RODERICK CAMERON,
Gardener Q. V. N. Falls Park.

To Kill Aphis.

Do you not use quassia chips along with whale oil soap? I see no mention of its being used in the east. Here we use $1\frac{1}{2}$ lbs. of quassia and $1\frac{1}{2}$ lbs. soap to 30 gals. water for aphids. I find that 1 lb. of soap alone to 15 gals. water is effective for aphids. Gillett's lye is a splendid wash before buds start to swell, to kill the aphid eggs and clean the bark, but is a little too expensive. One tablespoonful lye, 1 lb. soap, 15 gals. water for black cherry aphids.

Vernon, B. C.

R. T. F.

The Clyde Strawberry.

DEAR SIR,—I noticed in a recent issue of your very valuable paper, that you had had complaints from a number of customers about the Clyde Strawberry being soft.

Surely such parties must not have the true Clyde. I fruited 67 kinds this year, including all the leading kinds, and after three years thorough trial am prepared to say I never grew a firmer berry than

the Clyde. My best commercial berries this year were Bederwood and Warfield for early, followed in season by Clyde, Crescent, Haverland, Wm. Belt, Enormous, Ten. Prolific and Greenville. The last named is one of my family. I have added a lot of new varieties this year, and hope to be able to give you a detailed report of their behavior next year.

Now to return to the Clyde Strawberry. If it were a good plant maker and I were restricted to one variety, I should plant it alone. But with me it has been a poor plant maker and the first two years it was very good color, but this year it was all that could be wished.—Respectfully yours,

Renfrew, Ont.

W. J. KERR.

Our Affiliated Societies.

WOODSTOCK.—The fourth annual exhibition of the Woodstock Horticultural Society was auspiciously opened at the Graham street ring last night, August 22. Although the attendance was not as large as the society expected, the prospects are better for a good crowd to-night.

The dingy old rink looked anything but itself, thanks to the efforts of the decorating committee, composed of Miss Parker and Mrs. James Hay. Bunting of various colors, Chinese lanterns and a profusion of flags and curtains tastily arranged gave the place a decidedly pretty appearance, and the general effect was a source of much admiration. The exhibits, too, were far superior to those of other years, and the society is to be congratulated on its showing in this respect. Every branch of horticulture was fully and creditably represented. The musical programme was also a most important and enjoyable feature of the evening. The Imperial Quartette rendered three enjoyable selections, and Madame Hausch's popular stringed quartette was also heard to good advantage. Mrs. Balmer Watt sang the Gypsy Love Song from "The Fortune Teller," by request. Mrs. Watt's number was very much appreciated. Miss Clara Farrell sang a pretty solo and was obliged to respond to a hearty encore. The Misses Holmes and Nesbitt gave well rendered piano solos.

Mayor Scarff's splendid floral collection, consisting of one hundred and seventy-eight pots of flowers of various kinds, was greatly admired, and nobody disputed the fact that the Mayor's was the best exhibit of its kind at the show.

Charles Reid's and J. H. Callander's collections of cacti were the centre of much attention, and admirers of these plants found many new and strange varieties.

D. W. Karn's exhibit of house and foliage plants occupied a prominent position and compared very favorably with those of any other exhibitor.

T. H. Parker showed a wealth of beautiful hardy house plants and cut flowers.—*Sentinel Review*.

PICTON HORTICULTURAL SOCIETY.—The second annual flower show and exhibition of plants was held at the Crystal Palace on Friday evening, the 31st August, and was kept open on Saturday afternoon and evening, and also on Monday afternoon during the Firemen's games and sports.

On Friday evening the attendance was fairly good, there being about 275 present to enjoy the

flowers and listen to the concert by the band; on the other occasion the patronage was very small, and on the whole the flowers were not appreciated as heartily as last year.

The contributions of Mr. C. S. Wilson and Messrs. J. Terrill & Son added greatly to the beauty and success of the exhibition. Mr. W. P. Despard's palm was greatly admired, and the Norfolk pines and palms in Mr. Geo. O. Alcorn's collection were a very valuable addition; also Mrs. Stortz's magnificent hydrangea, and Mr. Geo. Williams' fuschia. The collection of plants and flowers from Messrs. J. Roland Brown, J. P. Blakely, T. Bog, J. C. North, Geo. W. McMullen and a number of others were very beautiful.

The tropical plants of Mr. Walter T. Ross were as usual of much interest. His fig trees were well laden with fruit, and the Papaya tree, or Papaw, was looked upon with much curiosity. It is a common practice in the tropics to cut meat in slices and wrap it in the bruised leaves of this tree for half an hour or so, which has the effect of making tough meat tender.

Great credit is due to the president, Mr. J. Roland Brown, and Mrs. Brown, for their untiring efforts, and they were ably assisted by others.

We understand the receipts were not as large as last year, but the exhibition in itself was a great success, even finer than the previous one, and a great many strangers who attended expressed their surprise that a town the size of Picton could make such a varied and fine exhibition of well grown plants and flowers.—*The Picton Gazette*.

GUELPH.—God made the flowers, and that He made them for man's delight and profit need only to be proved by a visit to the City on Sept. 12th. The place is a reasonably beautiful hall, as city halls go, but last night the corridors and auditorium were transformed, and one walked about in a perfect bower of loveliness. The flowers and plants, placed to best advantage to show their beauties by admiring owners, had worked the transformation, and when the orchestra played sweet music, and the big crowd came and admired, the directors and members of the Horticultural Society felt well repaid for their efforts and realized that the show was a big success.

The Guelph Horticultural Society, as at present constituted, is an association of about a year's standing, and its strength of membership already attained was shown by last night's display. Most

of the members are amateurs, and their gardening efforts are confined to the beautifying of home surroundings. But they are nothing if not enthusiastic, and when this display was proposed about a month ago, everyone concerned agreed to do all they could to make it a success in the way of contributions. The result was an almost overwhelming assortment of flowers and plants, in quantity sufficient to fill all the tables provided, fill all the corners available, bank up the stage, and then overflow into the old hall.

The greater portion of this display was made by amateurs, and to them much credit is due. The finishing touches and crowning features were provided by the professional florists, whose display was worthy of any metropolitan centre. The display tables, covered with white paper and draped with muslin and green foliage, formed a V from the stage, with a centre row of floor plants, and side tables along the walls. This arrangement proved very effective. Thain's orchestra was on the stage, behind a bank of flowers and plants which included, as one lady fittingly put it last evening, "most everything lovely."

Of the professional displays, the banking effect on the centre floor by Capt. Mann is worthy of note. This is the latest decorative effect, and it certainly makes the best and most of the plants used. Mr. Mann also shows a pretty supper table design. Mr. Jas. Gilchrist shows a fine collection of ferns as his principal feature, making special showing of the new Spreugrie fern: the latest decorative green. This is handsomely contained in a number of rustic hanging baskets in the windows, and gave a beautiful drooping effect. Mr. Gilchrist also shows some beautiful floral designs. Next his display is a table of rare cannas sent from Toronto by Mr. Archibald Gilchrist. The display was very favorably commented on.

Of the many meritorious amateur exhibits it would be invidious to make distinction. They

were so numerous, and withal so creditable, that it would be difficult indeed to make an order of merit. Immediately on entering the building one was bound to exclaim in admiration at the sight of the big rubber plant, fully twelve feet in height, the property of Mr. J. W. Lyon. This gentleman showed a large assortment of beautiful things. One of the happiest men in the place, happy because he loves the flowers, was Mr. Thos. Davies, Guelph's veteran amateur florist, who has many lovely plants, the showing of which he is justly proud.

Some of the special features were: "The aster table," as fine a collection as one could wish to see; "the yellow table," a bewildering phalanx of golden glow, dwarf sunflowers and coreopsis, eloquent of autumn, and the fine display of flowers and foliage begonias. Then one might mention the queen white nicotine flowers, blooming only at night; the generous bunches of sweet peas, redolent with fragrance; the fuchias, the every day geraniums, the fig trees, the pousettia, and the Japanese lilies, all of them lovely, while towering high over all rises the big "dracena indivisia," the very lord of palms, with the "sea maze" and "fish-tail" palms to keep it company. One scarce need think of other decoration, but in this regard the good taste shown by the management is commendable. Flags give a patriotic touch, and evergreens complete the simple embellishment to the plants themselves, and surely no more is necessary.

The exhibition is free, and the exhibits and work contributed by the members has been entirely voluntary. As an educative feature, this display must be commended, and everyone, whether interested in flowers or no, should pay a visit to the City Hall this afternoon or evening, and thus encourage the management in their worthy efforts.—*Guelph Daily Mercury*.

BOOKS FOR FRUIT GROWERS

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The Nursery Book.....	1 00
The Survival of the Unlike.....	2 00
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Horticulturist's Rule Book.....	75
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Pruning Book.....	1 50
Principles of Fruit Growing.....	1 25
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THE CANADIAN HORTICULTURIST

Vol 23

1900

No 11

** NOVEMBER **

THE SALE OF OUR FRUITS.

HOW TO AVOID THE GLUT IN APPLES.

AS we have already stated in a previous number, we anticipate a much better apple season than that of 1896. No. 2 stock is yearly becoming less and less salable, but so few have learned the lesson that poor stuff should only be offered by itself, and never mixed with good, that it still helps to glut our markets. Such mixed stock is bound to rule low, both at home and abroad, and will be constantly lower in value, until our growers everywhere have awakened up to new ideas on this subject of fruit packing.

A few have awakened and have begun to select and grade their fruit properly. They pack them in three grades, $2\frac{1}{2}$, $2\frac{3}{4}$ and 3 inch diameter respectively, each in separate packages, so that a buyer a thousand miles away can buy with perfect confidence from the grade.

The writer sold a carload in 1899 in this way to a person in Leeds. This year the order is doubled, at prices which will warrant the extra care taken. Not only

that, but inquiries have come to hand from Newcastle, London and other points after these same graded apples, which show how rapidly the reputation is spreading abroad of these graded packages. Our method is as follows: We pack the ordinary grade apples in the orchard. The foreman takes out his packing table among the trees, and the gang of pickers empty the fruit upon this table, which is large enough to hold two or three barrels at a time. (See frontispiece.) With the aid of two assistants, he is able to sort the apples as fast as picked, and to pack the ordinary and No. 2 grade in barrels for immediate sale in near markets, throwing out the culls in heaps on the ground to wait until the season is over and then be sold for evaporating or for cider. While the packer is thus engaged, the two assistants are busy selecting out all the perfect apples into boxes to be sent into the packing house. Here the high grade stock is carefully sized and packed. First it is emptied upon the Wartman grader and sized. No apple is counted No. 1 which is below $2\frac{1}{2}$ inches in diameter, while those $2\frac{3}{4}$ inches or over

are called A No. 1, and those 3 inches upwards are called X A No. 1, or Extra. These are then wrapped in manilla tissue paper, which can be purchased at about 20 cents a thousand squares, ten inches by ten. The wrapping costs from 2 to 3 cents a bushel. As fast as wrapped they are passed over to the packers, who pack them in bushel boxes. The apples are placed in rows—4 layers deep, 4 wide and 8 long, except the very largest. We use either excelsior or sphagnum for packing material; the latter is a little mussy, otherwise it is excellent; while the excelsior is clean and attractive, but not so good a preservative.

Now these cases of red apples, uniform in size in each package, and of the finest varieties of Canadian apples cannot fail to command a ready sale at the tip top price in any market of the world, and when once known must result in sales f. o. b. in Canada, instead of the present disastrous method of consigning in barrels to auction rooms in Liverpool, London or Glasgow.

OUR PEACHES.

While lower prices have been realized in our Ontario markets for peaches than we had expected, considering the general advance in value of other fruit products, yet peach growing is generally conceded to be one of the most profitable branches of fruit growing. There was, it is true, but little money in the early clingstone varieties, peaches that are of little value for any purpose, and which come in our markets when much better kinds are coming in from the American side; but when the Triumph and the Yellow St. John came along there was a better price and much satisfaction. The first Early Crawfords, our finest variety, sold at splendid prices, but this most excellent variety has been overplanted in Ontario, considering its extremely perishable nature, and has caused a glut in the markets, at

the height of Crawford season, that was quite discouraging.

One carload of beautiful golden Crawfords from Grimsby, shipped on Saturday, was sacrificed on Monday at 10 cents a basket, a woeful waste. But soon the California shipments ceased, and late Crawford, Elberta, Stevens Rareripec, Crosby, Longhurst, Smock, and other late varieties, when graded to size, brought from 30 cents to 60 cents a basket, and this price is quite satisfactory with an abundant crop.

Our great hope for the future, however, is in the export trade, and we hope this year to pass out of the experimental into the business era. The first peaches we tried to export were the Early Crawford, for we considered it our best peach; but the cold storage system was not sufficiently perfected to carry such a tender variety. Last year we tried a few Elbertas, and this year, under the direction of the Provincial Minister of Agriculture, we forwarded twenty-five Wilson cases of Elberta, and several cases of early and late Crawford, Smock, Stevens, Rareripec, Willett, Centennial and Longhurst. Fine peaches are high priced in England, because they must all be ripened under glass; therefore, should we succeed in this venture the peach trade will enter upon an entirely new era. We have every confidence now in reaching the English market with our fruit in good condition, since Mr. Hanrahan's patent method of refrigeration is being applied by the Ontario Department of Agriculture both to the railway and steamboat storage.

In grading the peach for foreign shipment we have adopted $2\frac{1}{4}$ inches as No. 1, and $2\frac{1}{2}$ as A No. 1; smaller than $2\frac{1}{4}$ inches we sell at home. Indeed, we ought to cut down every tree that grows little peaches, or else so thin the crop that none of the small size would be produced, for they do not pay in any market.

CENTRAL EXPERIMENTAL FARM NOTES.—X.



FIG. 1934. VIEW AT CENTRAL EXPERIMENTAL FARM.

IN many ways this has been one of the most remarkable seasons which has been experienced since the Central Experimental Farm was established. There have been few summers when showers were so frequent and long continued rain so rare. The result is that practically nothing has been injured by rain this year, and everything was benefited by the showers to such an extent that fruit, ornamental trees, shrubs, flowers and lawns never looked better than they did this season. At this date, October 12th, little injury has been done to vegetation by frost. Even such tender things as tomatoes are still growing, as what frosts there were have been very light. Many of the trees, shrubs, and plants are as green and fresh looking as they were in midsummer, and no one would suspect, if they did not know, that this was the middle of October.

The strawberry season was much longer this year than usual, the first picking being made on the 20th of June, and the last on

the 20th of July. Raspberries also were a good crop, and the season for that fruit was prolonged.

American plums did particularly well this season, and a large number of trees were heavily loaded. There is a growing demand and paying prices for these plums on the Ottawa market, and local men are planting more trees every year. Although there have been a large number of varieties sent out by nurserymen, only a few of the very best should be planted. Cheney, Wolf, Hawkeye, New Ulm, and Stoddard, are five of the best varieties yet tested, and they cover the season from the last week of August until near the end of September. Aitkin is a little earlier than Cheney, but not so good in quality.

The crop of apples was good, much better than was anticipated, for it was observed in the spring that the fruit was not setting well. Although the fruit did not set as well as usual, the extra size made up for the smaller number. The trees were

thoroughly sprayed as usual. There was practically no scab, and the codling moth also was not very troublesome.

Of all the varieties of apples grown in the orchard this year the McIntosh Red was the finest to look at. This variety has not proved a shy bearer at the Experimental

Summer—Yellow Transparent, Duchess.
Autumn—Wealthy.

Early Winter—McIntosh Red, and Fameuse in some localities.

Late Winter—Scott's Winter, Gano, Pewaukee, Salome. Milwaukee is a promising new winter apple, being an early and heavy bearer, and of fine appearance. We still require a hardy late-keeping dessert apple of good size and color. It will come in time.

Grapes did not do as well as usual this year. The showery weather caused the vines to make too much growth and also prevented the fruit from ripening well. Furthermore, the fruit did not set well at the outset. However, all the earlier varieties have ripened, and if severe frosts do not come soon many others will ripen also.

There is a very heavy crop of potatoes this year, free from both scab and rot. Among the best yielding varieties are Empire State, American Wonder, Rochester, Rose, and Carman No. 3. The yields per acre, however, of the different sorts have not yet been determined.

It is our intention to spray a considerable number of apple trees this autumn which are affected with the oyster shell bark louse. From experiments conducted here last winter, our conclusions are that two sprayings of lime and water, in the proportion of 2 lbs. of lime to one gallon of water, in the autumn, will remove nearly all the scales which are on the trees. It would appear that the lime loosens the scales, and during the winter they are either washed off by rain or broken off by ice becoming attached to them, the eggs which are underneath them being carried off also and so destroyed before hatching time, which is about the end of May. The lime spray is made by slaking the lime in water (only good lime should be used), stirring the mixture thoroughly and straining it before use. The tree should be thoroughly sprayed from



FIG. 1935. IRIS, JAGQUESIANA (PURPLE).
Grown at C. E. F., Ottawa, Jan. 18th.

Farm. Our trees bear annually, and, although never heavily loaded, produce good crops of fruit of fine size, appearance and quality. After another year's experience the hardy varieties we should recommend are :

top to bottom, and when it becomes dry, the second spraying—which can be done the same day—should be made. The trees should then appear as white as snow. Our

spraying will be done in November, when the buds are thoroughly ripened and dormant.

W. T. MACOUN, Horticulturist.
Central Experimental Farm, Ottawa.



FIG. 1936. IRIS, MRS. H. DARWIN (WHITE).
Grown at C. E. F., Ottawa.

IN France, Germany, Belgium and some other European countries, it is the practice to plant fruit trees along the public roads. The local governments plant the trees and cultivate them as a source of revenue, and

it is said that in Belgium there are 760,000 roadside fruit trees, which in one year produced \$2,000,000 worth of fruit. The walnut, cherry, chestnut, plum and apple are the favorite trees for roadside planting.

MUSHROOMS.



FIG. 1937. DR. J. J. HARE.

We have pleasure in introducing to our readers a new contributor to the pages of the *Canadian Horticulturist* in the person of Dr. J. J. Hare, Principal of the Ontario Ladies' College at Whitby. Many members of our Association will remember with pleasure his genial face, and warm greeting he extended to us on the occasion of our meeting at Whitby, nor the kind contributions of vocal and instrumental music made by the young lady students of Whitby Ladies' College.

Dr. Hare has an excellent record, having been Principal of the College since its inauguration in 1874, and under his care it has grown to be a most flourishing institution. The young ladies are prepared for first and second year examinations with honors of Toronto University. The departments of music, fine art, elocution, commercial branches, and domestic economy, are all equally well provided for.

Dr. Hare is well known at Grimsby Park, having lectured therein all eighteen times on different scientific subjects.

AT the time of the meeting of the Fruit Growers' Association in Whitby last year I promised the worthy editor of this journal that I would write for him an article on Mushrooms. I have on different occasions since that time been courteously reminded of my promise, but have hitherto been unable to fulfil it. The

fact of the matter is, the subject is too extended and too important to be condensed into one article, and hence I feel obliged, if I undertake the work at all, to write a series of short articles descriptive not only of some of the more common edible mushrooms, but also of some of the poisonous species. In doing so I shall be guided largely by what



FIG. 1938. ONTARIO LADIES' COLLEGE.

has been found in the neighborhood of Whitby. Last week I received a basket of mushrooms from a friend, containing two specimens, in which I felt greatly interested. One of these was a white gilled mushroom called the *Lepiota nancinoides*, an edible species just about as highly prized as the well known pink gilled mushroom, *Agaricus campestris*, and yet so much alike in its gills and cap the deadly white *Amanita*, that it is desirable to devote at least one article to a clear and definite account of the well marked peculiarities of the whole *Amanita* class. I have been pleased to learn that the honored President of the Fruit Growers' Association has become an interested student of micology, and that he has had the good fortune of gathering a

large puff ball and practically testing its esculent properties, and that he has done me and the readers of this journal the favor of having this magnificent "fruit" photographed to illustrate this article. On this account I shall begin with the puff ball. Without attempting to discuss this subject in a thorough or exhaustive manner, I would say that the puff ball belongs to the large class of plants known as Fungi, to which also belong the rust, the smut, the mould, the yeast plant, the bacteria, etc. It belongs also to the division *Gasteromycetes*, or stomach fungi, so called because the hymenium or spore bearing surface is enclosed in a more or less spherical case called the peridium, which ruptures at maturity and expels the spores in the form

of dust. All mushrooms, of whatever kind, grow from spores. These produce fine threads in the soil known as the mycelium. Upon these threads or vines appear at first tiny knobs or conglomerations of cells about the size of a pin's head. These rapidly develop under favorable conditions of soil, combined with moisture and warmth, and soon lift their heads above the soil and appear as baby mushrooms, which quickly attain to maturity. That which we see is really the fructification or fruit of the mushroom. In the case of the puff ball, there is little difficulty in distinguishing it from all other kinds of mushroom fruit. The only possible mistake that can be made is in confounding a young *Amanita*, when just emerging from the ground, with one of the smaller species of puff balls. The *Amanitas* are our most poisonous mushrooms. Though gilled like the common meadow mushroom, they emerge from the ground enclosed in a spherical volva or sheath, and to a careless observer might be mistaken for a puff ball. The slightest examination of the internal structure will show the marked difference. The young *Amanita*, when broken open, will reveal the enfolded form of the mushroom within, whereas the puff ball will be found to be solid and homogeneous throughout. It is a comforting thought that no poisonous puff ball has been found in any part of the world. From time immemorial the small boy has kicked it aside as a useless and unsightly thing, little dreaming that it contained for him a supply of palatable and nutritious food. The Rev. Dr. Badham, an eminent British authority on mushrooms, expressed his regret that tons of wholesome food were rotting every year on the ground because no one had sufficient knowledge to take advantage of it. The same remark applies with equal force in this country, hence it is high time that something be done to disseminate information, and I know of no association

so likely to be interested in the subject, or so capable of understanding it, as the Fruit Growers' Association. I admit that many have been deterred from the study of mushrooms, or micology, by the fear that it was an abstruse subject that was beyond their grasp and fraught with terrible risks. I shall endeavor in this series of articles to show that a very little knowledge will enable the reader to add materially to his "fruit" supply, and with perfect safety to himself. The accompanying diagram is a representation of the internal structure of a puff ball and serves to explain some of the technical terms used in describing it.

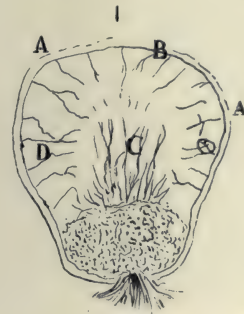


FIG. 1939.

- A—Interior rind, bark or skin—peridium.
- B—Inner rind or true peridium.
- C—Filaments rising from base—columella.
- D—Cottony threads or hyphae producing spores—capillitium. The space they occupy is called the gleba.
- E—Empty, sterile cells—space they occupy called the sub-gleba.

Most of the puff-balls belong to two genera—*Lycoperdon* and *Bovista*. Shall describe a few of the more common species.

Lycoperdon giganteum, or the Giant Puff-Ball. This is the one gathered by Mr. Orr, and of which the photograph is here given. Its great size will readily distinguish it from all other species. Its diameter is usually from eight to fifteen inches, though some have been found whose diameter was

twenty-five inches. Mr. Orr's specimen was an exceptionally fine one, and had a diameter of about sixteen inches. Dr. Curtis calls it the "Southdown of Mushrooms," and states that it has a delicacy of flavor that makes it superior to any omelette he ever tasted. He also claims that it is so easily digested as to adapt itself to the most

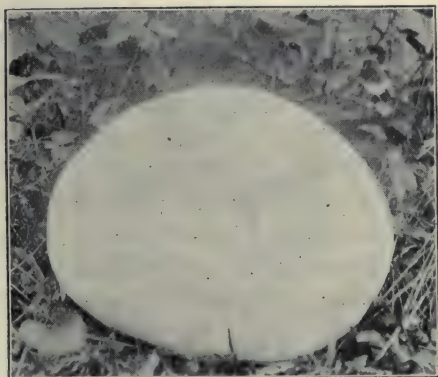


FIG. 1938. A GIANT PUFF BALL.

delicate stomach. I can corroborate this opinion by personal experience. Mrs. Hussey, of England, gives the following recipe for cooking: First remove the outer skin; cut in slices half an inch thick; have ready some chopped herbs, pepper and salt; dip the slices in the yolk of an egg and sprinkle the herbs upon them; fry in fresh butter and eat immediately.

Some mycologists have recommended cutting off a slice horizontally every day, using great care not to disturb the growth or induce decay. In this way it may last for a week.

Lycoperdon cyatheforme, or Cup Shaped Puff Ball. This is the next largest of the puff balls. Its diameter is ordinarily from three to six inches. It gets the name, *cyatheforme*, or cup-shaped, because the upper part of the peridium falls away when

mature, leaving a cup-shaped base with ragged margin, which may continue through the winter.

Lycoperdon pyriforme—Pear Shaped Puff Ball. This has a short stem-like base and is often found in dense clusters on the trunks of fallen trees.

Lycoperdon gemmatum—Warted Puff Ball. This is nearly spherical in shape, usually the basal portion is narrower than the upper. The surface is covered with small, irregular warts. When these fall off the peridium presents a dotted or reticulated appearance. This species is quite common in our college lawn. Sometimes several appear crowded together on the ground. The height is from one and a half to two inches.

Lycoperdon saccatum is smaller than preceding and without any semblance of stem.

The only species of the genus *Bovista* that I have time to describe is the little lead-colored *Bovista*, known as *Bovista plumbea*. This is quite common. It differs from the *Lycoperdon* in its more perfectly globular shape and in the more tough and smooth rind in the mature plant. The peridium opens by a small aperture at the top for the dissemination of the spores. When squeezed the spores will escape from the opening and appear like a little puff of smoke.

In conclusion I would say that the larger puff balls are much finer in quality than the smaller, and that no puff ball is fit to eat when it shows yellowish or brownish streaks through it or has become watery in the interior. It may be added that the dusty spores of the mature puff ball are often used to arrest hemorrhage from wounds.

J. J. HARE,

Ontario Ladies' College, Whitby, Ont.

NOTES FROM THE BIOLOGICAL DEPARTMENT,

ONTARIO AGRICULTURAL COLLEGE.

THE following notes bearing on horticultural topics are based partly on the past season's observations, and partly on the experiences of previous seasons.

Our correspondence with fruit-growers from various parts of the Province has been unusually heavy this year, and there appears to be a growing demand for more information regarding spraying, and insect and fungous troubles.

FRUIT DISEASES.

It is acknowledged by nearly every fruit-grower that the fungous diseases which are usually so destructive have not been very severe this past season, and have given but little trouble. This happy circumstance has resulted from the peculiar seasonal conditions. The early summer was very dry, and the moist conditions which ordinarily surround the spores blown from one plant to another were absent, and germination became impossible. Mildews on the grape were rare, but in one or two localities the gooseberry mildew was difficult to control. Apple scab was not serious, and leaf-spots were not common.

The dryness of the season, which was so unfavorable for the germination of spores and the development of fungous diseases, produced some peculiar features in *tomatoes*, *pears* and *peaches*. Many of these fruits had peculiar indentations, as if made by the pressure of a strong finger. Sometimes three or four of these were found on single pears and peaches. These indentations were very common on the pear, and no doubt interfered with its sale on the market.

On examination the tissue immediately beneath the indentation was found to be

drier than the remaining tissue, and unlike anything produced by fungi. As the spot increased in size the

area of dry tissue also increased, so that the condition was simply one of drying up of tissue in certain localized spots.

In the case of the tomato the disturbed area was very plain, and resembled the early stages of the tomato rot (*Macrosporium*). There was a diseased, sunken, circular spot covered by a tough grey skin, beneath which the pulp was dry. As the area increased in size bacteria gained an entrance and a rotting took place.

It is difficult to state definitely the exact cause which led to such a disturbance, but probably the chief factor was a diminution of moisture supply to the grown fruit at a time when evaporation from the fruit was still active.

FALL ORCHARD CLEANING.

Much can be said in favor of an annual *fall orchard cleaning*, although many of our fruit-growers are indifferent in this matter. Aside from the fact that there is more leisure after the fruit has been gathered than in the rush of our early spring when so many odds and ends must be attended to, there are many urgent and convincing reasons why our orchards should be very carefully cleaned of rubbish and litter during late fall and early winter. Many insects and fungi pass their resting stages during the winter among the grass and fallen leaves. Hedges and fence-corners are favorite hiding places for many destructive insects, and whenever possible these places should be searched, and the collected rubbish burned. If this



FIG. 1941.
CANKER WORM.



FIG. 1942. CODLING MOTH.

cleaning be left till the spring many of the insects will have left their winter-quarters, and got away, prepared to continue their depredations for another season. When the foliage falls from the trees many cocoons will reveal themselves, tucked away in crevices or crotches, and in folded leaves, which still cling to the branches. Egg clusters, too, will be readily seen if present. All these should be removed and burned. A little time spent at this season among the trees, searching for cocoons, folded leaves, and egg-clusters is money saved for the next season.

People often wonder how it happens that certain insects appear in such alarming numbers during the summer. A few careful observations during the fall and winter will show how these insects pass the cold period of the year. The egg masses of the tent caterpillars will be found encircling the smaller branches. If these bracelets of eggs be removed whenever seen much serious injury will be averted the following spring. The canker-worms pass the winter in the egg state, and these eggs are often to be seen in masses on branches. The codling-worm passes the winter in a cocoon, under bits of bark, boards, and in crevices, and a general clearing will get rid of many of these

troublesome pests. The grapevine flea-beetle and the plum curculio pass the winter in their full-grown beetle condition in sheltered spots, often near the base of the plant. Squash-bugs also winter over full-grown in sheltered spots, under boards, and in corners of outbuildings.

There is also a necessity for a thorough cleaning up of the orchard for the purpose of destroying many of the fungi which remains on the ground in diseased leaves and

FIG. 1943. AMERICAN TENT CATERPILLAR—
a and b, caterpillars on nest; c, egg cluster;
d, cocoon; e, male moth; f, female moth.

fruit. It is a well-known fact that many injurious fungi produce winter spores, and though the leaves decay the spores do not. In early spring these will produce spores which will soon spread to the early leaves. The diseased fruit, plants and leaves, should be burned, not thrown on the manure pile, for then the spores will be able to survive the winter, and reproduce the disease the following season. Moreover, many fungi persist in the leaves as delicate threads, which develop rapidly in the spring and pro-



FIG. 1944. FLEA BEETLE.

duce spores which are soon blown by the wind to the leaves where they germinate and produce disease.

It may safely be said that if all leaves, decaying fruits and diseased twigs be burned at the approach of winter the damage from fungous diseases would be lessened very materially.

THE CELERY BLIGHT.

Many celery plantations were seriously affected with a blight which caused the leaves to wilt and die. The pale spots increase in size and become yellow. It would appear that the celery which was most seriously attacked occupied high, dry land, fully exposed to the sun, and the plantations on low, moist grounds were exempt from the disease. During August and the greater part of September the rows of diseased celery showed very little growth, and every evidence pointed to a complete failure of the

crop; but with the cooler weather of the last week of September and the first weeks of October, a decided change for the better has come over the crop, so that with careful handling fair results may be secured after all. According to a report issued by the Division of Vegetable Pathology at Washington shade is of very great importance in growing of celery free from this blight. When the soil is cool and moist, and the air humid, as at Kalamazoo, Michigan, the disease is unknown.

Experiments show that much advantage is derived if the rows are sprayed regularly every two weeks with ammonical carbonate of copper.

ASPARAGUS RUST.

From reports, and from observations made during a recent visit to the Niagara region, I am in a position to believe that the majority of asparagus beds of that district are in danger of being destroyed by the asparagus rust. At this season the black rust spots are plainly evident on the stems, branches and leaves, while the wilting and bleaching of the whole plant are still more plainly seen. Many of the owners are alarmed, and with the recent introduction of the asparagus beetles more than a few have decided to give up the culture entirely. This rust has done much mischief in many of the States, and a timely warning, I trust, will be appreciated.

Asparagus Rust (*Puccinia Asparagi*) is closely allied to the wheat rust, and like it produces several kinds of spores during the season, but unlike it forms all these different kinds of spores on the same plant. The early shoots of infested plants will bear yellow cluster cup-spores, and later shoots brown pustules of summer spores, followed later on by the black spots and streaks which are so common just now. The dark-brown spores which are set free from these spots are winter spores, and if left undisturbed will continue the crop of rust for next

season with still more damaging results. The early wilting of the asparagus plants this fall means a poor crop next season. All wilted and diseased plants should be cut and *burned* unless the owner wishes to have a very inferior, useless crop next season.

In view of the fact that the beetles are

active in many beds, it would be a wise thing to spray the beds several times with Bordeaux and Paris Green immediately after the spring crop is gathered. This spraying will keep both the rust and the beetle in check.

W. LOCHHEAD.

O. A. C., Guelph.

FRUIT EXHIBIT AT THE PAN-AMERICAN.

SIR,—There will probably be some very satisfactory results, and also some dearly bought experiences in making our exhibit of Canadian fruits at Paris, France, this year. It has not been my privilege to receive any detailed report as to what condition the fruit was found when required for the tables, but it is generally acknowledged that one of the greatest trials of the Horticultural Departments of previous Expositions has been that of providing fruits so that a good exhibit might be obtained from the opening time of the exhibitions.

For the World's Fair, Chicago, arrangements were made with Swift & Co. for the storage of 180 bbls. apples, consisting of 34 varieties.

A few weeks ago, Mr. F. W. Taylor, Supt. Horticultural Division, wrote Swift & Co., asking them to be kind enough to supply such information as would indicate what sort of storage was used, and results.

Reply as follows :

DEAR SIR,—Replying to your favor in reference to apples which were stored for the Nebraska State Horticultural Society on our plant here, will say that those apples were stored in warehouse, cooled by natural refrigeration temperature ranging from 36 to 42°, and was thoroughly dry.

For your information will state that we made tests on apples which were stored with us, and found apples packed in *waxed paper* kept better than those packed in brown, or than those which were not wrapped at all.

We are certain that any temperature ranging from 36 to 42° is a desirable temperature for storage of apples provided same is dry.

Trusting this is the information you desire, we remain yours, etc.,

(Signed) SWIFT & Co.

Mr. Youngers wrote a very full and complete report upon the subject of keeping apples which was read at the winter meeting of the Nebraska State Horticultural Society. This report is of such great interest to us at present that a copy is here given of a portion of the report giving results on the first 15 varieties, giving the percentages indicating the condition of the varieties named at the date mentioned :

	June 15	July 14	Aug. 2	Sept. 2	Oct. 2	Nov. 1
Ben Davis	10	10	10	10	10	10
Wine Sap	10	10	10	10	10	10
Juneating	10	10	10	10	10	10
W. W. Pearmain	10	7	6	6	4	3
Limbertwig	10	10	10	10	10	10
Allan's Choice	10	10	10	10	9	8
William Twig	10	10	10	10	10	10
Sweet Russet	10	10	9	9	8	8
Red Romanite	10	10	10	10	10	10
McIntosh Red	9	9	9	9	9	9
Salome	9	9	9	9	9	3
Dominie	9	8	8	8	7	6
Roman Beauty	8	8	8	7	6	5
Iowa Blush	8	8	8	8	7	5

Other varieties stored gave slightly lower percentages than the above.

Mr. Youngers, in compiling this report used the scale of 10. Those found in perfect condition were marked 10, and those more or less damaged marked accordingly.

The markings were made at time of taking from cold storage.

He was satisfied that wrapping first in waxed paper and then in any common paper and packed and pressed in barrels gave decidedly the best results.

In order to test this matter a few barrels were placed in storage without any wrappings—varieties, Ben Davis and Wine Sap. They were placed in the same storage room and received the same treatment as those wrapped, yet fully 70% of them were decayed when taken out June 1st; not only were they decayed, but those remaining in a firm condition were so badly discolored and so off-flavored as to make them unfit for show or market. A few of the same varieties were wrapped in newspapers, not using waxed sheets, and of these fully 30% were in poor condition June 1st, while the same varieties wrapped in a double wrapping of waxed sheets and common paper remained in almost perfect condition as late as November 1st.

I do not know what steps have been taken by either the Dominion or Ontario Governments or the Associations in the way of providing for a spring exhibit of fruit at the Pan American at Buffalo next spring, and I feel I should at least mention the subject to you and take the liberty of offering a suggestion,—that some competent man be appointed to correspond with a few

or limited number of our best fruit growers, and ask them to select and place in their cellars at once a number of barrels of apples, varieties that are to be named, and that the agent visit those growers, and re-select, wrap and pack the fruit and ship to cold storage, the agent to take the wrappers with him. In that way the fruit would be of more uniform quality and the packing correct. I hope this matter has received the attention of the executive.

The above letter is written with the idea of offering a few ideas, the fact of which you were probably aware of, and with your experience of recent years past methods may have been improved upon, but I am anxious to see Ontario hold her own at Buffalo.

Would you kindly let me know what has been done in the matter, and if the Government will give us a grant to meet this exhibit.

HAROLD JONES.


Maitland, Ont.

NOTE BY EDITOR.—We have already brought this subject under the notice of the Hon. John Dryden, who has authorized us to secure cold storage space for at least 100 bushels of prime Canadian apples, to be stored at Buffalo. In case Ontario proceeds to make a fruit exhibit, these will be in reserve to be drawn on from time to time for filling the tables. Already we have secured these apples from our various experiment stations and others, and we are having them wrapped first in waxed paper and then in manilla tissue, just as our correspondent proposes.

OUR APPLES WANTED IN UNITED STATES.—After all the great outcry about the enormous crop of apples on this continent, it is rather surprising to receive such a letter as the following from a neighboring city. Perhaps, after all, the United States will prove a competitor even this year for our excellent Canadian apples. It is Messrs. Armacost, Riley & Co., of Cincinnati, who write as follows, on the 28th September :

While winter apples appear plentiful, fall fruit is as scarce in our market as we have ever known. The demand for soft varieties, such as Colverts, Jennetings, Alexanders, Maiden Blush, etc., is enormous, and the few coming forward from the east sell at \$2.50 to \$2.75 per bbl., and we believe the large Canadian packages would bring \$3.00 quick. We have never known a better opportunity to make money on fall fruit, and if you are packing or can do so promptly, write or wire. The weather is now cool and ordinary box cars can be used in shipping.

CANADIAN FRUITS IN ENGLAND.

HE last parcel of Canadian fruit that was put upon the market this week was of an instructive nature, for it proved clearly that the fruits of the Dominion can be sent into England in the pink of perfection. Amongst the varieties put up for sale were some very fine Williams (or Bartletts, as they are called in Canada), Duchesse and Beurre D'Anjou, the last variety of which is a very dainty pear, and is sure to make headway in our markets. The shipment sent consisted of 1,000 cases of pears, and, in addition, there were some peaches and a few apples. The former consisted of Elberta and Crawfords.

The samples of pears were unusually large and fine. The Williams were grand, and it is clear that no competitor on the market from any outside centre can touch them, for as far as quality, size, flavor and color, are concerned they are as perfect as a market William pear can be. The other varieties are also of prime quality. It is thus evident that at last the whole export business has been put upon a proper basis; and that Canadian growers and shippers may rest

satisfied with the situation as far as methods of transit are concerned.

This highly satisfactory condition of things has been brought about under the auspices of the Hon. Sydney Fisher, M. P., Minister of Agriculture for Canada. In future, we now know that Canadian fruits of the most delicate nature can be shipped to the United Kingdom with the satisfaction that they will come to hand in a perfectly salable state, so that there is no reason why Canada, the premier fruit colony of the Empire, thanks to the fostering influence of its Minister of Agriculture, and the ably-led department over which he presides, should not develop a gigantic trade in fresh fruits, especially with this country.

We learn that other fruits are to follow, that 1,000 cases of grapes will soon be seen upon our markets in one shipment, and that they will be of equal quality to the pears. The fruit dealers, buyers, and consumers of our cities will appreciate these Canadian shipments, and as they are of the highest quality their popularity with the masses must be an increasing one.

SAMPSON MORGAN.

WINTERING APPLES, ROOTS, ETC.—I never had better, juicier, tenderer apples to eat in early spring than those taken out of a pit outdoors. For that reason I have always favored the plan of wintering at least a portion of my apples for home use in that way. This method seems to keep all the flavor and all the brittleness in the apple intact, and perhaps is the simplest and safest of all for ordinary uses. The apple is less susceptible to injury from freezing

than potatoes. It ranks about with mangels, beets, turnips and similar root-crops in this respect. Every farmer may be supposed to know how to pit potatoes. Apples can be handled in the same manner, only that a little less covering may be needed. Where the subsoil is porous we may dig a pit a foot or more in depth, otherwise we must select a well-drained spot, and put the apples on top of the ground, resting on a good layer of clean straw. Pile up the apples in a conical

heap, inserting a wisp of straw into the centre of each heap and letting it stick out of the top. This latter is for ventilation. Gases and heat must have a chance to escape. Next put on a generous covering of straw or marsh-hay. If it is a

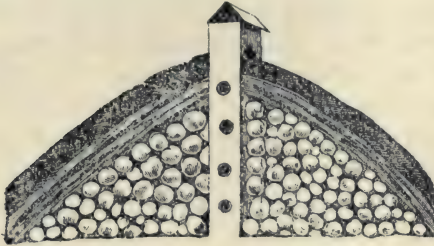


FIG. 1945.

FUMIGATION FOR SCALE.—Prof. Lochhead, of the O. A. C., Guelph, gives the following memo. for the guidance of nurserymen in the fumigation of nursery stock :

1. Formula for apple, pear, plum, cherry, quince, shrubs and vines : Cyanide, $\frac{25}{28}$ of an ounce ; sulphuric acid, $1\frac{1}{4}$ fluid ounces ; water, $1\frac{7}{8}$ fluid ounces for every 100 cubic feet in house or box.

2. Formula for peach, raspberry, gooseberry and currant : Cyanide, $\frac{2}{3}$ ounce, sulphuric acid, 1 fluid ounce ; water, $1\frac{1}{2}$ fluid ounces for every 100 cubic feet in house or box.

3. The following plants do not require fumigation : Evergreens, strawberry plants, bulbs and tubers, herbaceous perennials and bedding plants.

4. Damage may be done to stock (a) if fumigation takes place too early in the fall,

foot or more in thickness it will do no harm. In place of a wisp of straw an upright box, say six inches square and long enough to reach from the ground to a few inches above the top of the heap when done, as shown, will supply the needed ventilation. The earth covering which comes over the straw all around need not be more than a few inches thick. The pit is thus to be left until freezing weather, when a further covering of straw and earth, or a very heavy covering of coarse manure, is to be placed upon the frozen earth of the first covering. Roots are pitted in the same manner.—*Farm and Fireside.*

before the buds are set and the wood sufficiently dormant, and (b) if fumigation takes place late in spring after the buds have begun to swell.

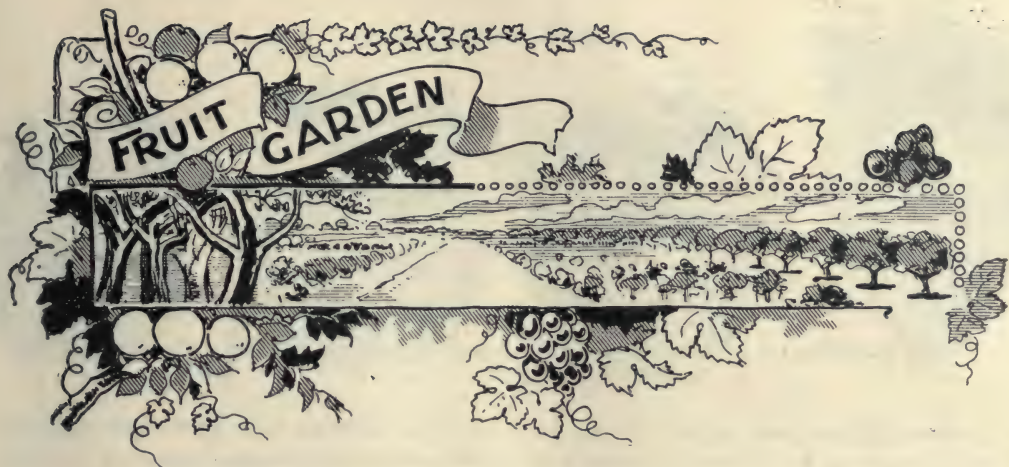
5. The roots of stock should be exposed for as short a time as possible, both before and after fumigation. Experience shows that much injury has resulted from such exposures.

6. No nurseryman shall use chemicals other than those sent from the Agricultural College, Guelph, except by special permission of the Inspector.

7. Nurserymen should bear in mind that a certificate of fumigation must be attached to every package of nursery stock sent from the nursery.

8. No fumigation house is to be used for fumigation purposes until sanction has been obtained from the Inspector.





FRUIT CULTURE—XIV.

THE STRAWBERRY.

THE earliest and possibly the most wholesome of all fruit, who would not grow strawberries? And yet many a farm home is without a supply of this fine fruit; and many others, owing to a lack of knowledge or a want of thought on the farmer's part, get samples that are but caricatures of this noble berry at its best. Like the other small fruits the strawberry imperatively demands a rich, well-drained and moist soil. Unlike the raspberry, it is a comparatively shallow feeder, and this fact must guide us to some extent in manuring and in tillage. Thorough preparation of the soil before planting will especially pay in the case of the strawberry. The ground should be thoroughly worked, and if underdrained or if subsoiled so much the better, as such soil will be drier in a wet season and moister in a dry season. As no fruit is looked for the first season, but only a good strong lot of plants, well-rotted barnyard manure is the most profitable as it is the most convenient of fertilizers. In the second year, when fruit is the object, the case is different. The berries take practically no nitrogen out of the soil, and as this

element is the important one in barnyard manure it is obvious that such manure could be better employed elsewhere. We have an ideal fertilizer for the berries in unleached wood ashes, which contain in well-balanced proportions the two elements required by the fruit—potash and phosphoric acid. This may be applied broadcast over the patch in the late fall or on light soils very early in the spring. Anywhere from 50 to 100 bushels to the acre may be profitably used, and, for preference, the larger amount. Spring planting is usually found best. Put out young, vigorous plants as early as possible so that they may get thoroughly established before dry weather comes. From three to four feet between the rows and eighteen inches in the row will be a suitable distance. In a large patch the rows may be marked with the corn-marker and the holes made by striking a spade in the ground and moving it backwards and forwards. A boy can follow and spread the roots of the plant fan-shaped in the cleft. Whatever method of planting is followed the important things are that the earth should be well firmed round the roots and the plant set the right depth.



FIG. 71



FIG. 72



FIG. 73



FIG. 74

The above illustrations from Bulletin 27, Central Experimental Farm, show clearly how to do and how not to do it.

Fig. 71 is obviously all right. In Fig. 72 the root system has a poor chance to develop quickly. Fig. 73 shows a plant too deeply set. In such a case the crown would be smothered and the plant die. In Fig. 74 the reverse has happened and the plant would probably soon wither and die.

rows of varieties with imperfect blossoms will answer the purpose. Cut off all blossoms from the newly set plants. They will produce fruit at the expense of growth. Cultivate and hoe thoroughly and often. If possible do not let a single weed go to seed the first season and you will be well repaid

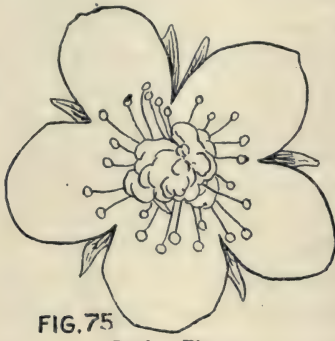


FIG. 75

Perfect Flower

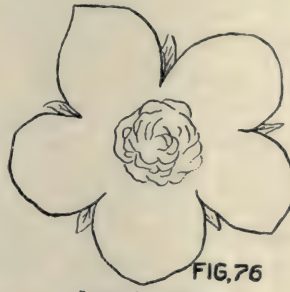


FIG. 76

Imperfect Flower

Strawberries may be practically divided into two classes, those with perfect and those with imperfect blossoms. The former has both stamens—male organs—and pistil—female organ. The latter only the pistil.

In Fig. 75 and 76 illustrations of each kind will be seen. As a pistillate variety cannot produce fruit unless fertilized by the pollen from a perfect flower, it is necessary to see that at least part of the patch is given up to varieties with a perfect flower. One row of "perfect" varieties to every three

the following year. On the whole the "matted row" system of growing is the best. Some growers cut off all runners for the first two months and then let them grow; others—and this is probably the better plan—allow a few runners to establish themselves from each plant and then cut off all subsequent runners. In this way a sufficient amount of strong, vigorous plants are ready for fruiting next year. In any case the mistake should not be made of getting a wide, densely matted row, where half the plant is producing little or no fruit, or fruit of an in-



FIG. 77
Williams.



FIG. 78
Bubach.



FIG. 79
Warfield.

ferior quality. The continual freezing and thawing that often takes place in the latter part of the winter is seriously injurious to

the plants and a winter covering is therefore generally advisable. The mulch should be put on when the ground first freezes up and



FIG. 80

CLYDE.

raked into the space between the rows directly spring growth commences, where it will conserve moisture and keep the berries clean. In a small way pine boughs and a layer of leaves answer admirably. On a large patch marsh hay or clean wheat straw will do. A manure mulch produces too many weeds, and any mulch that packs very closely will do more harm than good. The labor involved in keeping a patch in good shape for a second year's fruiting has made the practice of resetting every year very general. Certain varieties do so much better in one locality than another that no positive statements as to the value of varieties can be made. Let every man ascertain what kind does best under his local conditions.

The following list of well tried varieties is suggested :

Haverland. Pistillate, large, productive, rather soft.

Bubach. Pistillate, very large, not a good "runner."

Warfield. Pistillate, medium size, very productive.

Williams. Perfect blossom, large and firm, and good yielder, though tendency to show a green tip.

Van Deman. Perfect blossom, early.

Dominion. Perfect blossom, late.

Clyde Perfect blossom, a new and very promising variety ; large, vigorous and productive.



FIG. 81

HAVERLAND.



FIG. 82. Leaf Rust.

Diseases. The chief disease attacking the strawberry is the Rust fungus, Fig. 82. Where foliage is much injured by this disease it naturally affects the production of new plants and the subsequent crop of fruit.

One spraying of the Bordeaux mixture before fruiting, and two later on, if the patch is kept over, will do much to control the rust.

Grand Forks, B. C.

M. BURRELL.

STRAWBERRY CULTURE.

FALL PLANTING.

WHILE nearly all commercial growers plant their strawberries in the spring, a great majority of the skillful amateurs prefer to plant in the summer or fall. Peter Henderson said that if he were planting fifty acres he would use potted plants, and set them in the summer or fall. As we can do no more spring planting this year, we will consider the matter of fall planting. First, let us inquire into the habits of the plant. It is entirely different from nearly all other plants with which we have to deal. It is a stemless plant, and yet it produces neither bulbs, corms nor tubers. It consists of a crown from which roots extend into the soil and the leaves into the air. The crown is the im-

portant part of the plant, and contains within itself at the close of the growing season, much of the material that enters into the crop the following year. All the effort of the grower is directed towards surrounding the plant with the most favorable conditions so that it may build up a strong crown.

The strawberry plant is a perennial, and, under favorable conditions, will bear year after year, yet it will simplify matters and help us if we consider it a biennial. No part of the plant lives more than two years—not much over one indeed. The roots now being made by the earliest runners will turn back and die next summer, and a new lot will come out above them, and a new crown will be built up on top of the old one. The leaves

that go into winter quarters soon die in the spring, so that while the plant seems to be the same, it has new roots, new leaves and a new crown. This shows the importance of getting all the growth possible during the growing season, taking good care of the plants through the winter, and getting the new growth started as soon as possible after the crop is secured.

SOIL.

The best soil you have that is available will be found just right for the strawberry. The plant needs plant food and moisture, and if these be supplied it is immaterial whether the soil be light or heavy. If it be very sandy or gravelly it will be harder to keep it moist. If too low, there is more danger from late frost. If just south of a building or a tight board fence, the plants may get more reflected heat than is good for them, and if in the neighborhood of large trees their roots will run under the plants and deprive them of food and moisture. Many a strawberry bed has been ruined by the roots of trees from one to two hundred feet away.

PREPARATION OF THE SOIL.

Make it fine and firm. If the soil be deep it may be plowed or spaded to a good depth provided it is made fine and compact afterwards. It is much better not to plow at all than to leave lumps and cavities. Plants will not do their best in too loose a soil. They may make a good growth, but they will not bear well. A cavity of any size directly under a plant will prevent it blooming at all. I have set plants on ground that was trenched thirty inches deep, and on hard soil with only three inches of the surface made fine, and had good success in both casss. The soil loses its water mostly by evaporation, and I am unable to see why the plant can not get its water just as well within a few inches of the surface as a foot below, provided the ground is mulched.

The ground should be rich in potash and phosphoric acid. It is not best to apply too much nitrogen, as it causes a rank growth of foliage and runners, with little or no increase in the crop of fruit. If the intention is to plow up the bed after bearing, nitrogen may be applied liberally after the berries are formed. Stable manure may be applied during the winter with decided advantage. No lime should ever be put on land for strawberries.

PLANTING.

The time to plant in the summer and fall is just as soon as you can get plants and damp soil. Each day's growth adds to the crop. It is well to remember, however, that the hot and dry weather of July and August are very unfavorable for newly set plants, and the chances of having the plants make a steady growth from the start—which is very important—are much better if the planting be deferred until September, when we are likely to have more moisture in both the soil and the air. Very young runners planted any time in September will produce as large berries as if planted much earlier, but not so many of them. It is well to remember that any check to a strawberry plant during the growing season is quite serious. For this reason it is safer to plant later than to get the plants out early and have them remain at a standstill on account of heat and drouth.

After getting the ground prepared, it is worth considering what kind of plants to use. It is generally conceded that runners of the present year's growth should be used, but I have known several growers who preferred the old plants that have just fruited. I have used them myself with good success. A young runner is considered merchantable as soon as its roots are branched. These are the plants most generally used. A most excellent method is to take these young layers and transplant them into mellow soil a few inches apart, where they can be shaded and watered for a few days. In a week or

STRAWBERRY CULTURE.

ten days they may be taken up after a thorough watering, with the soil adhering, and set where they are to bear. They are equal to potted plants.

Potted plants have been exceedingly popular, and are sold in very large numbers. Very much may be said in their favor, and this we hear. There are some serious objections to them, and these are seldom spoken of. The chief advantage is that they may be transplanted, even by inexperienced persons, and receive little or no check. The pot is sunk in the soil near the runner that is to be potted, filled with earth and the young runner placed in it and held in place with a small stone. In two weeks it may be cut from the parent plant and removed to a frame where it is to be watered and possibly shaded for a few days. Potted plants are costly, especially if shipped far by express. If they remain in the pots too long they become pot-bound and, worst of all, the larvæ of the crown-borer and other enemies may be carried to the new bed in the pots.

If one wants potted plants without the expense of transportation, he can buy layers and pot them himself. Many of the potted plants sold are quite unsatisfactory. I usually report all that come to me. A good potted plant is a prize, but not all are good.

The conditions of success in transplanting are that the plant be kept from drying while out of the ground, that the roots be put in close contact with the soil, that the crown be level with the surface, and that shade and moisture be supplied until the plant has recovered from the effects of removal. This is where potted plants have the advantage; they are not taken out of the soil in which they rooted.

Almost as soon as the plants are transplanted cultivation should commence. The object is not to kill weeds—although it does this incidentally—but to keep a loose surface so that the water coming up from the subsoil by capillary attraction may be prevented from

reaching the surface and escaping, but may be held underneath the loose soil where it is utilized by the plants. When we consider that all the food taken up by the roots of plants must be dissolved in water, and that for every pound of dry matter deposited in a plant, 300 lbs. of water must be evaporated from its leaves, we get some idea of the importance of conserving the soil moisture. Within certain limitations, our crops are in proportion to the supply of water.

ENEMIES.

In cultivating the strawberry we are likely to have to do with some insect enemies. The white grub is conceded to be one of the worst. It is liable to be found in sod, and the safe way is to avoid sod land, and plant where cultivated crops have been grown for two years at least. When the crown borer or strawberry root worm gets into a bed, it should be plowed up as soon as the crop is secured, and a new bed should be coming on at some distance from the infested one. Enemies of the strawberry seem to be on the increase, and the plan of taking but a single crop and then plowing up the bed has much to recommend it.

Fungous diseases sometimes claim our attention. The most common is the rust. Every variety is subject to it, but some more than others. Some claim to be able to keep it in check by using the Bordeaux mixture. If plants are kept growing vigorously they are seldom injured to any great extent by the rust. It is however, unsafe to plant a new bed where a rusty one has been plowed under within a year.

WINTER PROTECTION.

After carrying the bed through safely till the end of the growing season, there is one more precaution to take lest the plants be injured by alternate freezing and thawing. The injury comes in this way: soil expands more or less by freezing in proportion to the amount of water it contains. This expansion

only takes place in an upward direction. As the frost penetrates deeper and deeper, the soil rises, carrying in its grasp whatever it is able to lift, whether it is a strawberry plant, a clover root, a garden stake or a fence post. The first thaw allows the earth to settle back in its place, but the plant does not. It may be only one-eighth of an inch, but if repeated often enough the plant will be lifted out of the ground. We have all seen this. Now, if we cover the ground between the plants with an inch or two of manure or a litter of any kind, in October, before the freezing weather comes, the frost will be unable to penetrate the soil so readily. And if it does somewhat, the covering of litter will prevent the thawing of the soil for a time, and the water will settle, leaving the surface so dry that there will be no expansion even if the frost enters the soil. We know that plants are not lifted out of sandy or gravelly soil if

the drainage is good. This freezing of the soil does the plants no good, although they may live in spite of it, and if we can prevent it we should do so. It is generally recommended to strawberries when the ground is frozen hard enough to hold up a team and loaded wagon. This is a mistake. In most cases great damage is done before severe freezing weather comes. My advice is to cover the ground between plants soon after the first frost, then when winter comes, cover the foliage until it is entirely hidden. There is no danger of putting on too much covering if it be taken off before growth commences in the spring. The damage comes from leaving the covering on until the plant starts, and then removing it. The white, tender growth that is made under a mulch is easily destroyed by either heat or cold.

M. CRAWFORD.

CUYAHOGA FALLS, O.

THE BOSCH PEAR.

The Bosch pear will never be a glut in the market, for the reason that the tree grows so crooked and slowly that the nurserymen will not grow it, says Edwin Hoyt in Rural New Yorker. Those who buy trees do not understand that there is as much difference in the habit of growth of trees as there is in animals, and are not willing to pay any more for one tree than another of the same species. If a nurseryman were to bud 1,000 stocks to Bartlett, he would, no doubt, get 900 good trees, while if 1,000 stocks were budded to Bosch, he might not get more than 100 good salable trees, and many of these might have to be staked while growing to get the body up straight so as to make a tree a customer would receive if sent to him. Many nurserymen grow a few Bosch by top working them, that is, by budding the Bosch in the top of some strong growing variety like Clapp,

Buffum or Anjou. To raise the trees in this way, the nurseryman has to charge more for them to pay him for his extra trouble.

If one wishes to obtain a Bosch pear orchard the best way to get it is to set Clapp or some strong growing variety. Let it grow two years, then top-graft it. This, of course, is some trouble and expense to do, yet the one who does it will get a good paying pear orchard, for this variety will never be over-produced. It is a fine pear, a heavy bearer and usually grows smooth and fair with good feeding and cultivation, such as any orchard should have for profit. The Winter Nelis is one of the best of winter pears, but the tree is like the Bosch, so poor and crooked a grower that few trees are raised by the nurserymen. To succeed with this variety, it must be top-grafted as above directed for the Bosch.

Pedigreed
Pedigreed
Pedigreed
Check
Catote
same variety
different variety

PEACHES.



FIG. 1945. THE MAGNIFICENT PEACHES.

SIR,—I take the liberty of sending you a photo of peaches grown in my garden (61 Glengarry avenue, this city), if you think it worthy of notice use it.

A Californian peach stone was sown in the fall of 1896, and the fruit shown in the photo is the result. The Peach is almost perfect, with red blush ; cut open the flesh is a rich,

amber color ; stone small, surrounded by a deep red color ; peach very juicy and exceedingly fine flavored. You will see the weight of the three peaches is 21 ounces, and measure almost nine inches. The peaches were picked October 1st. Yours very truly,

GEO. CHEYNE.

Windsor, October 3rd, 1900.

PEDIGREED FRUIT TREES.—Professor G. Harold Hall, of the Delaware Agricultural College, gave an address on the importance of the plant individual in horticultural operations at the semi-centennial of the American Pomological Society. He said: Three Wine-sap apple trees in the same orchard showed a difference of from 30 to 60 per cent. in the yield of apples. This seems to show that there are strong inherent qualities in fruit trees. I think these strains of light and heavy bearing are generally found in orch-

ards. Are the qualities hereditary, and can they be transmitted through the buds and scions from the most productive trees? Can we establish pedigree in fruit trees, and obtain the results of a selection that extends through several generations? From experiments made along these lines, I think the individuality of fruit trees can be, to a large extent, transmitted and preserved. I advise all fruit growers to propagate fruit from the most productive trees.



FIG. 1946. SOME FINE BEGONIAS. (See page 485.)



TIMELY TOPICS FOR THE AMATEUR.—IX.

THE more frequent and intense visitations of frost that usually occur during November, accompanied perhaps by rain or snowstorms, will make work in the garden less pleasant and enjoyable than during the earlier days of autumn. That delightful, but decidedly fickle and uncertain period of late autumn weather—Indian summer—does not always materialize, especially in Southern Ontario. Advantage must therefore be taken of every fine day to straighten up all odds and ends of out-door operations in the garden previous to winter setting in earnest.

The protection of tender plants, etc., will be one of the most important items requiring attention at this season of the year. The too common method of applying a heavy covering of perhaps almost rotten manure indiscriminately to all kinds of plants cannot be too strongly condemned. This method is, generally speaking, very successful in smothering and killing out entirely many of the more tender varieties of perennials and biennials, especially those that are not strictly herbaceous in character. Pæonies, Holland bulbs, lilies, etc., that have little or no top growth to preserve, do not object to a good heavy mulch of manure

during winter. Japan lilies, such as *L. auratum*, *L. speciosum*, and other varieties even more tender than those mentioned, are distinctly benefitted in winter by a good heavy mulching. The hardier varieties of lilies, such as *L. candidum* and *L. tigrinum* (Tiger Lily), will also appreciate a slight protection of this kind during severe weather. Most of the border perennials and biennials, a majority of which may be very properly termed only semi-herbaceous in character, would, however, oftentimes succeed far better if left exposed fully to the vagaries of winter weather without any protection at all, than to have the life smothered out of them by a too liberal covering of heavy mulching material. Perennial border plants, such as dianthus, gaillardias, campanulas, aquilegias (Columbines), perennial phlox, or more especially biennial plants, such as holly hocks, *campanula pyramidalis*, etc., would certainly suffer very materially by the above mentioned treatment. Many fine collections of the two last mentioned biennial flowering plants have been killed out entirely in winter, by a too liberal application of unsuitable mulching material. This latter evil, combined with attacks of the fungous

disease that has of recent years been so disastrous to hollyhocks, has almost banished this grand old-fashioned flower from our gardens. The *Campanula pyramidalis*, however, seems to be quite proof against either disease or attacks of insects, a little extra care in winter, beyond ordinary culture, being about all it requires to give profuse returns of its handsome spikes of bright colored, showy flowers during the summer months.



FIG. 1947.

SPRAY OF GAILLARDIA GRANDIFLORA.

A good covering of snow is undoubtedly a splendid protection to plant life in winter, especially if sufficient of it could be retained in its natural light fleecy form to cover the plants the entire winter through. Experience has taught us, however, that snow cannot always be depended on for a winter covering for plants, especially towards spring-time, when the heat of the sun, or perhaps a warm rainfall with sharp frosts immediately following, converts the cover-

ing of half-melted snow into a thick sheeting of ice over and around the plants. This accumulation of ice is as injurious to plant life as the heavy covering of manure before mentioned, as it often hermetically seals the plants under its icy grasp, entirely excluding air from them, without which very necessary element plant life cannot possibly exist. Alternate periods of freezing and thawing are also very disastrous to unprotected plants.

The great point to be gained in successfully protecting semi-herbaceous border plants in winter is to provide a covering that will exclude to a great degree extremes of frost, as well as the rays of the sun, without excluding air altogether from the plants. Keeping the covering next to the plants as dry as possible is another very essential point in the protection of plants in winter.

There is no better and easier obtained covering for the class of plants mentioned than fresh fallen autumn leaves. Sufficient of these should be first placed about the plants to cover them. Strong wire, or tough pliant twigs, should then be bent over the leaves so as to form an arch. This support of wire or twigs should be strong enough to support any additional covering that may be afterwards thought necessary, so that the extra weight does not bear down on the plants. This second or outer covering should consist of long sedge grass, straw, or long strawy manure, placed over the supports in such a way so as to form a rough thatch, to throw off any moisture and keep the underneath covering as dry as possible. Beards can be used to answer the same purpose as the wire or twigs; these, however, must be well supported, so as to keep them from pressing on the plants. Stone or blocks of wood can be used for this purpose. If the supports are strong, additional covering can be added at any time if required, but as a rule a light cover-

ing of the materials mentioned, with the assistance of a covering of snow, will be found to produce better results than too heavy an artificial covering. Many border plants will often come through the winter splendidly, without any protection, but a light covering, if properly applied, is certainly an additional security.

For roses, tender shrubs, or plants that

covering for young tender trees or plants in winter. The brush or shrub to be protected should first be tied or bunched up in as close a compass as possible. Commence putting on the material at the base of the plant first, allowing each successive layer to slightly overlap the one below it. This method effectually throws off all moisture, thereby lessening to a great extent the



FIG. 1948. BED OF CANNAS AT GORE PARK, HAMILTON, OCT. 12, 1900.

cannot be laid on the ground and protected, no better covering can be found than two or three thicknesses of bass matting. The dried grass mats, used for an outer covering of tea chests that are imported from China, makes a splendid covering for this class of plants. An inner lining of straw, or some similar material, may in some cases be necessary in addition to the matting. Long sedge grass, or even the long leaves or husks of corn, are also useful for a

serious effects of severe frosts. Vines that can be laid down near the ground can easily be protected with leaves, long strawy manure, or sedge grass. None of these coverings that have been mentioned should be put on until quite late in the season, especially in the case of covering up grape vines, as mice and rats may perhaps mistake your protecting material as having been prepared for their especial benefit, to furnish comfortable quarters for them to winter in.

This is more particularly to be taken into consideration where leaves are used as a winter covering for roots or vegetables, as these destructive little nibblers are very partial to snug, warm quarters in winter, especially with a plentifully supplied larder close at hand. If the covering is not applied until after the first fall of snow, these little pests are seldom troublesome.

of bloom standing erect above their handsome foliage, as perfect in form and rich in coloring as it is possible for them to be. Foliage beds of *caladium esculentum*, *coleus*, *ricinus* and *acalyphas*—to say nothing of beds of geraniums, begonias, etc.—can be seen on almost every lawn, resplendent in all their summer beauty of foliage and flower. Verily this, the last



FIG. 1949. BED OF *RICINUS*, *CALADIUM ESCULENTUM* AND *COLEUS*,
GORE PARK, HAMILTON.

Photo taken Oct. 12, 1900.

It seems decidedly out of place and unreasonable, at this date (October 15th) to be writing an article on the protection of plants from severe frosts, as up to the present there has not been the slightest frost in this locality to even dim the rich summer coloring, or check in the slightest degree the luxuriant growth and flower of the most tender exotic plants. Masses of cannas can be seen with their large showy trusses

autumn of the 19th century, must be recorded as being exceptionally fine and beautiful in this section of Ontario. Possibly before this reaches the eyes of our readers a decided change will have come over this scene of summer beauty in late autumn. The accompanying photographs of two of the many fine beds of flowering and foliage plants to be seen in Gore Park, as well as the other parks in the city, will give our

readers an idea of the almost tropical weather experienced in Southern Ontario during the past few weeks. On the 6th of October at 2 p. m. the mercury registered 86° in the shade, at 6 a. m. it was 72°. These were about the highest points reached, although the temperature for the whole of October to the present date has been very much higher than is generally experienced. It cannot, however, be reasonably expected that the summer weather we are enjoying can last very much longer, and it is quite possible that many of our semi-hardy plants will require even better protection during winter than usual. Tropical weather in autumn is not reasonable, and certainly not suited to prepare plant life to withstand a rigorous, severe winter which it is possible we may experience.

THE GREENHOUSE.—This department will now require close attention. Increasing the amount of fire-heat will develop a rapid increase in insect pests, especially green fly or aphid. Give these latter a dose of tobacco smoke, or tobacco water, before they injure the plants. Frequent fumigations, and not of too severe a nature, are much better than heavy fumigations at long intervals.

Chrysanthemums will be in the height of their beauty now. The earlier varieties, such as Midge, Pride of Pacific, etc., will be about over their best. Overhead syringing of these plants should not be indulged in when they are in flower. Give all the air possible without risking the safety of other plants. A little liquid manure will help the late flowering chrysanthemums to swell their buds and produce finer blooms. "Fostite" will check rust on chrysanthemums, as well as on carnations, but will not apparently eradicate this troublesome disease entirely from these plants. Flour of sulphur and dry air-slacked lime mixed together in equal parts and dusted carefully on the under side of the foliage of



FIG. 1950. RICINUS.

chrysanthemums will partially check this disease. Red spider will be almost certain to make his appearance about this time. Keep the atmosphere of the greenhouse or conservatory as moist and humid as possible and syringe well on the underneath side of the foliage, especially that of roses. Cinerarias must be potted into larger pots as required; don't allow the plants to become pot-bound with roots. Thrip often attacks these plants. If the foliage does not look healthy and the leaves are blotched with dull white specks or spots, the minute little pest, "the thrip," is causing the trouble. Dipping the foliage of the plants in moderately strong tobacco water is the best remedy for these almost invisible pests. The underneath side of the leaf is the part of the plant they usually attack, a microscope being often needed to locate them at their work of destruction. The fumes of tobacco takes no effect on these minute little pests, but raw tobacco stems placed around and underneath the pots will check their ravages to a great extent. Cuttings of geraniums, etc., that are rooted in the cutting bed, or in boxes or pots, must be kept fairly moist at the roots, but should not be syringed overhead, as this induces "damping off" of the foliage.

Spiraeas that have started growth will require plenty of water at the roots. Remember when fumigating to lift these plants

down on to the floor, as tobacco smoke is very injurious to the tender foliage of *Spiraeas*. The last batch of freesia bulbs should be potted ; if kept later, small and inferior flowers are generally the result. How few of the tuberous rooted *tropaeolums* are seen in greenhouses. They make an ideal and unique plant for amateurs. *Tropaeolum tricolorum* is about the best variety, *T. jarratti* coming next in point of value. Light, fairly rich soil, with plenty of drainage, in a good sized pot and a moist atmosphere suits these pretty little greenhouse climbing plants admirably. A light wire frame or a small plant ladder about 2 ft. high, made of slats of thin wood, will make a suitable support for these delicate little climbers. The bulbs must be kept quite dry during summer, after the flowering period is over and the foliage shows signs of decay. Close ventilators in the greenhouse early in the day if ventilation is given at all.

WINDOW PLANTS.—Watering the plants and keeping them free of insects will be the principal features in the care of window plants. The leaves of *Ficus elastica* (India rubber) plants, and even the older leaves of *Calla lilies* and similar plants, will benefit by a sponging with clean tepid water once a week. Water of a temperature of about 50° is best both for watering at the roots as well as for applying to the foliage of plants. Keep as moist an atmosphere as possible prevailing in the room where the plants are. A steaming kettle, or open pot of water, will benefit the plants, and not jeopardize the health of the inmates of the house. Water the plants at the roots thoroughly, but only when needed. The latter very essential point in the care of plants can only be learned by close observation and experience—two of the best tutors for plant growers. Experience is sometimes costly, but its lessons are generally of an effective and lasting nature.

FLOWER GARDEN.—Finish preparing the

beds and borders ready for an early start in spring.

Spring flowering bulbs should be planted out at once if not already done. A good mulch of half-rotten strawy manure should be placed over the ground where bulbs are planted. This mulch need not be applied until frosts set in for good.

Protect all tender plants as required. Avoid handling or tramping on plants when they are in a frozen condition.

FRUIT AND VEGETABLE GARDEN.—There will be little to do in the fruit and vegetable garden now, except to finish up any arrears of work, such as digging, etc., and securing any late crops that are not as yet properly stored for winter. Additional covering for vegetables in pits will probably be needed. Avoid putting on too much covering, as the exclusion of air altogether, and the heat caused by over-covering vegetables, often cause a greater quantity to spoil and rot than if left comparatively open and unprotected. Cover up spinach that is to stand out all winter, with the trimmings of the raspberry patch. Fine brushwood, young suckers cut from fruit trees, or the coarse trimmings from border plants, such as perennial phlox, zinnias, etc., make a splendid winter protection for spinach. Manure or any close heavy material should not be used for covering spinach in winter, as it is certain to rot if covered up too closely.

Take up a few roots of parsley, cut off all the large outside leaves, and plant the roots thickly in soil in a large pot or deep box. Place the pot or box in the window or greenhouse and keep the roots well watered. Rows or beds of parsley left outside during winter should be protected as recommended for border plants.

Asparagus beds should have a good coating of well rotted manure for a winter covering.

HORTUS.

Hamilton.

CULTURE AND ADAPTATION OF THE DAFFODIL OUTDOORS.

SOIL.—The daffodil will thrive in any ordinary garden soil, but prefers a deep, rather moist loam. When the soil is of a dry sandy nature, it should be deeply dug, rotten stable manure should be added, and a potato or other crop taken off before planting. If this is not convenient, then place the manure at least twelve inches deep, so as to be out of the reach of the bulbs ; the manure is used not as a stimulant but as a sponge to hold moisture in the soil. The ammoniacal properties of manure are injurious to the daffodil, hence great care is necessary in the use of it.

Freshly dug soil should be allowed to stand vacant two to three weeks before planting, to allow the ground to settle down, otherwise the freshly planted bulbs are often drawn under considerably below their proper depth, and the bloom in consequence is weakened and retarded.

Best and safest manure to use is crushed bones or basic slag. This should be applied at planting time, and may be mixed with the soil and placed next the bulbs ; the crushed bones may be applied at the rate of 4 cwt. to the acre, or $1\frac{1}{2}$ oz. to the square yard, and basic slag may be applied in the same manner at the rate of 1 ton to the acre, or $7\frac{1}{2}$ oz. to the square yard. We recommend the basic slag in preference to the crushed bones, it being more reliable, and a good manure for all lands ; on very poor and dry sandy soils we recommend in addition sulphate of potash to be sprinkled annually in the autumn over the surface of the ground, or after planting, at the rate of 2 cwt. to the acre, or about $\frac{3}{4}$ oz. to the square yard. The potash not only increases the depth of color in the flowers, but also helps to hold the moisture in the soil, a con-

dition so essential to the perfect development of the daffodil.

In early spring, as soon as the daffodils begin to show above ground, the surface should be well broken with a hoe, to sweeten it after the heavy winter rains.

Planting and Lifting.—The best time to plant to obtain the finest flowers is from end of August and during September, although bulbs may be planted as late as Christmas with very satisfactory results. They may be left undisturbed for three years in ordinary good loamy soils, but on poor and light soils they are better lifted every two years, as soon as the foliage has died down, and replanted as early as is convenient. Never plant when the ground is wet and sticky, wait until it is dry or friable. Do not put silver sand around the bulbs of *Narcissi* except in the case of *N. corbularia*.

Depth to Plant.—The average depth to plant is from 2 to 3 inches, that is to say, a covering of two to three inches of soil, but not more. As the bulbs vary considerably in size, according to the relative varieties, the best rule to go by is the bulb itself, which should be covered with soil once and a half its own depth, measuring the bulb from the collar of its neck to its actual base.

Position and Grouping for Effect.—All daffodils prefer partial shade, although most of them will grow equally well in the open. In the flower border, to obtain the best effect, daffodils should be planted in large groups of irregular outline, each group or clump to contain one variety only ; avoid straight lines, circles and symmetrical designs. Masses of daffodils should always appear in the hardy flower border, where irregular and effective sweeps can be planted between the clumps of herbaceous plants which in their turn grow up and hide

as well as shelter the daffodil foliage while it is going to rest. In grouping, the season of flowering should be borne in mind, as the varieties bloom in succession from the end of February to the end of May, during which period a constant succession of flower is obtainable by a judicious arrangement.

Varieties specially suitable for naturalising in grass, woodlands, etc.—These are all free seeders, and will therefore spread naturally; they are mostly natural hybrids—*Abscissus*, *Achilles*, *Countess of Annesley*, *Golden Spur*, *Henry Irving*, *Obvallaria*, *Spurius*, *Thomas Moore*, *English Lent Lily*, *Princeps*, *Scoticus*, *Variformus*, *Albicans*, *Pallidus*, *Praecox*, *Moschatus of Haworth*, (very pretty in grass), and *Poeticus* of the Pyrenees. The varieties italicised we do not recommend for the cultivated border, as they deteriorate the second year, while in grass or meadowland they flourish.

Hints on Naturalising in Grass.—All daffodils may be planted in grass with perfect success. To produce the best effect the three groups should be kept separate; thus the *Star Narcissi* should not be mixed with the *Great Trumpets*, nor the *Poet's Narcissi* with the *Star Narcissi*. In arranging, make the breaks large and bold, scattering the bulbs over the ground broadcast with the hand, and dibbling into the ground where they fall. Avoid symmetrical lines or formal circles as far as possible, as these are never found in nature.

Method of Planting in Grass.—Take a stout wooden dibber (like a potato dibber) with a strong tread; make the hole in the ground about six or seven inches deep, and fill up with a good mixture of prepared soil consisting of two-thirds loam and one-third old leaf sod; into this press the bulb, and cover up the hole with some compost; this will give the bulbs a fair start, and success is sure to follow. In planting under trees, avoid places where the drip from the

branches is greatest, also where the main roots come close to the surface.

CULTURE INDOORS IN POTS, ETC.

Of the stronger growing sorts use three to six bulbs, according to size of bulb for a $4\frac{1}{2}$ to 6-in. pot; of the small growing kinds, such as *N. Minimus*, *Nanus*, *Minor*, *Cyclamineus*, *Triandrus*, *Juncifolius*, and *Corbularias*, use twelve to eighteen bulbs for a $4\frac{1}{2}$ to 6-inch pot. These small-flowered dwarf-growing species are most charming in pots or little shallow pans. The following may easily be had in bloom in January—*N. minimus*, *minor*, *nanus*, and *Cyclamineus*, and these may be mingled with *Chionodoxas*, as both bloom at the same period and produce a charming contrast. The *White Hoop Petticoat Narcissus* should be potted in almost pure sand kept well moist, and may be had in bloom shortly after Christmas:

If daffodils are wanted in quantity for cutting early in the season, plant thickly in boxes five or six inches deep, and only just cover the bulbs with soil, using ordinary potting soil. The pots or boxes should then be placed out of doors on a firm bottom such as a bed of ashes or a gravel path and be covered with six inches of ashes or cocoa-nut fibre. When the bulbs have filled the pots or boxes with roots and made an inch or two of top growth, portions should be removed indoors in succession, selecting first those which flower naturally early. First place in a cold frame or cool greenhouse, and when the flower buds are well advanced shift to a slow forcing house when they should have abundance of water and plenty of air. The plants should be kept as near to the glass as possible, and not allowed to get down from an insufficient supply of light or air. On no account should bottom heat be given.

A charming effect is obtained by growing daffodils in fancy bowls, simply using cocoa

fibre. Fill the bowls one-third up with fibre, then insert the bulbs and fill up nearly to the top with fibre. Give sufficient water to make the whole damp, and after that simply keep the fibre moderately damp. Should the material and bulbs lift owing to root action, simply press them down gently and evenly into the bowl. Daffodils may be grown successfully this way in a cool greenhouse or sitting-room window (by preference a room without a fire). They

should be grown cool, and not brought into warmth until the flower buds are coloring.

To obtain very fine blooms daffodils should be cut in a young state, just when the bud has well broken and is expanding from the spathe. Place in water and allow the flowers to open in a cool greenhouse or sitting-room. The blooms opened in this way are larger than those which develop out of doors.

—*Barr's Catalogue.*

THE FREESIA FOR WINTER BLOOMING.



FIG. 1951. GIANT BERMUDA FREESIA.

Pike, in *American Agriculturist*, give the following pointers for success with the freesia:

A rich, sandy potting soil is preferable, and a five or six-inch pot will accommodate half a dozen bulbs—one in the centre and the remainder in a circle about an inch from the side of the pot. Cover about an inch deep, water thoroughly and set out of doors

in some cool, shaded spot protected from rain. Cover over with straw or mulch of some kind to keep dark and cool while roots are forming, and examine frequently, giving water when the soil appears dry on top. As soon as the shoots begin to prick through the soil remove the mulch and gradually accustom to sunlight. Keep them out of doors and in full sunlight until there is actual danger of freezing, taking them into the house nights when necessary. They are not a tender plant and prefer a cool temperature.

When no longer safe to keep them outdoors during the day, place them in a sunny window of a fireless room and keep them there as long as the temperature does not go down to actual freezing. If necessary, they may be removed over night to a room having a fire, but during the day give a sunny, but cool window if possible. Water freely and as often as needed, and when the buds begin to show among the sword-like leaves, a light application of some liquid fertilizer may be given once a week. When the fruit flowers begin to open give an hour or two only of morning sun, then remove to a shaded location which will make the flowers more lasting.

BEAUTIFUL BULBOUS FLOWERS

BY ELMER E. SUMMEY.

COMPARED with the almost universal use of our ordinary flowering plants, it is remarkable that the bulbous class should be so little appreciated. It is true that there is a constantly growing interest manifest, but this is not so great as the merit of this class deserves.

I wish to incite the reader to a greater degree of familiarity with these worthy plants. With them, the season of flowers may be extended from the first warm days of spring to the sharp frosts of autumn. The earlier flowers, modest though they are, from their welcome contrast to the winter's bareness, are more enjoyable than many of the gorgeous blooms of summer, when all nature is clothed in beautiful array.

Even now is none too early to begin the consideration of which to use, and the effects for which to aim. The bed should be designed and prepared in readiness for planting, by the last of September, or the first week of October at the latest. Where the Easter Lily (*Lilium Candidum*), are used, efforts should be made to get them planted during August.

With these bulbous flowers as with nearly everything else, the greater the care and preparation bestowed upon the soil in which they are to grow, the more satisfactory will be the return, although it is also true that many bulbs will do fairly well in the most neglected of situations.

With the combination of taste and ingenuity many pleasing effects may be produced by the use of the various brilliant hues, and taking advantage of the difference in habit of growth of the many desirable forms. Where one has grounds of sufficient extent, a good sized bed could be devoted solely to bulbous subjects, as a proper selection

would produce flowers almost continuously throughout the season. Such a bed should be arranged to present at different seasons certain particular effects; for instance, with the first signs of spring, the bed should appear as though wholly planted to crocuses in their various colors, together with snow-drops. The first should be planted in fancy outline designs all over the bed, the latter being used in several places for filling in the design.



FIG. 1952. PLAN FOR LILY BED.

The crocuses begin to bloom in March and April if the season is forward, and continue until the Hyacinth come to the front. The colors are white, blue, striped and yellow, and present a gay appearance. The bulbs should be planted about two inches deep and about four inches apart, when a thick line of foliage and flowers will be formed.

The Snowdrop (*Galanthus*) are delightful pure white flowers, both double and single, which are frequently in bloom before the snow is gone. Plant the bulbs about three inches deep and about the same distance apart, in clumps a foot or more across. Every three years they should be taken up and replanted.

After these earliest flowers are nearly

past, Narcissus, Hyacinths and Tulips of various colors should be coming on; the bulbs having been planted to harmoniously fill out the design formed by the crocuses, care should be taken to use the latter as well as the early sorts in order that the season may be lengthened until into June.

At this time Iris, of the various sections, English, German and Spanish, will be coming into bloom, while the Japan Iris will prolong the season with its gorgeous orchid-like flowers. The hardier and more robust of the Lilies should be distributed over the bed.

To furnish bloom through the later summer months, gladioluses and perhaps a few dahlias tubers might be used for the sake of variety. Then to close up a long season of bloom there should be set all over the bed, about a foot and a-half apart, plants of the Japan anemones, using both the red and white varieties; although they are not of a bulbous nature their low habit of growth through the summer renders them eminently fitted for such use, as they shade the ground somewhat, for the bulbs are not yet in the way of their well doing; late in the fall after nearly all other flowers are gone, the ane-

mones and dahlias should be staked while in bloom, then it will be an easy matter to find the bulb when they should be taken up in the fall, care being of course taken to disturb the other bulbs as little as possible.

Where it is not practicable to have such a bed as above outlined, a judicious planting of many bulbs may be made in the shubbery border, in any open spaces. If even this is not allowable from the lack of space, the earlier blooming kinds, including tulips and hyacinths, can be used in the same beds that summer-grown plants are grown. The bulbs can be dug up as soon as the flowers have gone, and planted in some out-of-the-way place for ripening until planting time in the fall, after the first hard frost.

In the formation of such a bed it is of course necessary that the soil should be deeply dug and well fertilized with old and well rotted manure. Early in the winter, after the ground is frozen, a good top dressing of manure should be given the bed, both for protection of the bulbs, hardy though they are, and the continued fertilizing of the bed, as this manure is dug into the surface the following spring.—*Our Country Home.*

SOME FINE BEGONIAS.

SIR,—I enclose you a photograph* of a group of Begonias in bloom, the size of the plants, and the amount and size of the bloom I think is seldom seen.

My reason for sending you the photograph is two-fold. First, I consider this variety of begonia the Queen of the family, and the readers of your journal will do well to secure a plant of this variety, which requires very little more care than a geranium, only it is not so hardy.

I wish to say here that I do not sell plants but the variety can be secured from the florists about here, and the next thing is to know the name, since it goes under four or five names, and I am not sure which is the

right one, and this my second reason for sending you the photo, thinking that some one of your readers might be able to give it its proper name.

I secured the cuttings under the name of Pictaviensis. I have been told that it came from the United States under two names, as follows,—Velutena and B. Cuprea. I see a cut resembling this one in English journals under the name of Haegena. I also noticed a cut in the Horticulturist in the spring, by Webster Bros., Hamilton, resembling this variety. The question is, are they all one variety under different names, or are the varieties all different.

Niagara Falls South. R. CAMERON.

* See page 474.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

A GOLD MEDAL was awarded the Secretary of the Ontario Fruit Growers' Association for a collection of choice apples and pears forwarded by him to the Paris Exposition.

ELBERTA PEACHES FOR ENGLAND.—The steamer *Trader*, sailing October 5th, was rather late to carry Elbertas, which were just over. Nevertheless Mr. J. Wesley Smith, of Winona, put up twenty-five Wilson (bushel) cases of this variety for us to experiment with, and we sent them forward to Manchester. We have a good deal of confidence in the future of this variety.

A FINE SEEDLING PEACH.—To-day, Oct. 6th, we received from Mr. W. E. Wellington, Toronto, a very fine sample of a seedling peach grown in Toronto. It measures $3\frac{3}{4}$ inches in diameter and weighs over half a pound. The flesh is yellow, juicy and

excellent, and quite free from the pits. We know of no peach of its season to compare with it. We have finished Elberta, Late Crawford, Steven's Rareripe and Longhurst, and are now gathering Smock and Winter, but these latter are small compared with this fine sample.

A GRAND PRIZE for Ontario fruit, which was collected and forwarded by the writer to the Paris Exhibition, has been awarded the Dominion of Canada.

We have just received the following communication from Mr. Auguste Dupries, Secretary of the Canadian Commission, dated Paris, September 1st, 1900:

DEAR SIR,—I have much pleasure, by order of the Canadian Commission, to advise you that the International Jury at the Paris Universal Exhibition has awarded the Dominion of Canada for a collective exhibit of Horticulture, of which your exhibit of peaches, etc., formed an important part—a GRAND PRIZE DIPLOMA, and you will be entitled to receive a copy of the award.

The collection included all the fruit varie-

ties of fall and winter apples and pears, the following varieties of peaches: Elberta, Late Crawford, Wonderful, Lord Palmerston and Pride of Canada; and a set of bound volumes of the Canadian Horticulturist and Reports of the Ontario Fruit Growers' Association.

MESSRS. SIMONS, SHUTTLEWORTH & Co., Liverpool, cable: No fresh Canadians up in time for sale to-day. The market opened steady and continued so throughout the day. Good apples meeting with a strong demand.

Shipments last week from all parts will aggregate 48,000 bbls. to Liverpool, 20,000 bbls. to Glasgow; 22,000 bbls. to London (mostly from Nova Scotia), 300 bbls. to Hamburg, a total of 90,300 bbls., against 89,173 bbls. corresponding week last year.

YEAR 1900 APPLES AT PARIS.—At the request of the Hon. Sidney Fisher we undertook to forward two collections of Ontario apples to Paris. The first lot, consisting of thirty cases of summer and fall apples, with a few pears, went forward about September 15th, in cold storage as far as Manchester. In this collection were such varieties as Blenheim Orange, Alexander, Snow, Swazie, Cranberry, King, Wealthy, Maiden's Blush, St. Lawrence, Red Russet, Louise, etc. Our readers will be pleased to read the following cablegram, dated Paris, October 15th, from Commissioner Dupuis, one of Canada's representatives at the Exposition:

Fresh fruit in splendid condition. Four additional gold medals awarded Canada on Thursday. Prof. Drummond, from London, warns the department at Washington to wake up, as Canada leads in quality and quantity of products.

(Signed) Dupuis.

A FINE SEEDLING APPLE.—On the 6th October we received two fine seedling apples from Orillia, which originated on the farm

of Alex. McPhie, three miles out of town. Mr. J. Ryerson, who sends the apples, writes: "These apples average about the size of the samples, 3 inches in diameter, are entirely free from scab, not inclined to drop from the tree, bear a full crop alternate years, and a half crop the other years. The fruit keeps till about January. The tree is a chance seedling."

This is certainly a most attractive looking apple, almost equal to the Gravenstein in appearance, and of a season to continue in use from the time that variety is over in October, throughout November and December. In form it is oblate, with deep russeted cavity and large deep basin. The skin is straw colored background, almost covered with stripes and splashes of bright red. The flesh is white, fine grained, moderately juicy, of an agreeable, aromatic flavor.

This apple appears worthy of further notice by our fruit committee.

PRESERVING FRUIT FOR EXHIBITION.—T. Cranefield, in Wisconsin station report, gives results of experiments in preserving fruits for exhibition purposes, and retaining color and form. Sulphur fumes, corrosive sublimate, salicylic acid, and solutions of formalin in water were tried and found to be of little value. Mixtures of formalin and alcohol were tried, however, as preservatives for plums, with considerable success. A formula containing 2 per cent. of formalin, 20 per cent. of alcohol, and 78 per cent. of water was found to be best suited to the purpose.

"Plums put in the above mixture one year ago are at present well preserved. The fruit remains firm, and in the case of the lighter colored varieties the color is well preserved and the liquid remains clear. The color was not so well preserved in the case of the dark-purple varieties. The Japan plums are especially well preserved both in

color and form. . . . Plums that were put in the mixture slightly immature cracked badly in every case, while those put in fully ripe remained without cracking. Currants, raspberries, and blackberries placed in the formalin and alcohol mixture mentioned above remained firm, but the color was not well preserved."

THE APPLE MAGGOT.—Card, of Rhode Island, has found orchard cultivation to go a long way in destroying this insect. Of 500 apples picked from a tree in grass, September 19th, where the ground had not been ploughed about 400 were wormy, while on the ploughed ground only about half of that number were affected.

THE QUALITY OF CANADIAN FRUITS is the subject of comment in *The Fruitgrower*, published in London, England, from which we quote as follows :

We are particularly pleased to testify to the quality of the Canadian fruits. They are far superior to the American, the flesh of the fruits are finer, more juicy and toothsome, whereas a good many of the Californian Newtown apples are hard and quite different to those sent from Canada. This is proved indirectly by the excellent prices which rule for best Canadian stuff, and we hope that the public will create a larger demand than ever for the finest of fruits which will be shipped us from the patriotic colony which sent such brave volunteers to uphold the glory of England in South Africa.

PERFECT SUCCESS IN EXPORT OF TENDER FRUIT.—This season inaugurates an entirely new era in the fruit growing industry. Until this present season there was no guarantee of temperature on shipboard, and the ship companies would not agree to keep the temperature within certain specified limits; the fruit might be cooked or it might be frozen, and all the same they would not be responsible. But this year this agreement has been made. Besides this, the Provincial Department of Agriculture has taken an intense interest in the success of this experiment and has determined that

it shall not fail. A car has been fitted up by Mr. Hanrahan, especially fitted for fruit carriage, holding exactly the number of cases required to fill the storage chamber on shipboard, and the storage on the *Manchester Trader* has been fitted up in the same way, so as to give cold with ventilation, which is so important to the best results. Two shipments have been forwarded in this system, and the third is to follow. We are happy to state that all these have arrived in perfect condition and have brought the most favorable criticisms from the English papers. Our Crawford and Elberta peaches in particular surprised them, for they could not believe that such elegant fruit could be grown in the open air. Complete reports of prices, etc., will be given later on.

OUR GLADIOLI EXPERT, Mr. H. H. Groff, of Simcoe, records victories for his Gladioli at London, Toronto, Montreal and New York. He has scored a victory over Mr. J. L. Childs in his own country that is most gratifying. "This stock," he writes, "he has discarded, it having been superseded by the more advanced work to be exhibited at the Pan-American in 1901."

OUR WINTER MEETING.—On invitation of the Board of Trade and the Brant County Farmer's Institute, the Ontario Fruit Growers' Association is to meet in Brantford on December 19th and 20th, at 9 o'clock a. m. Mr. S. D. Willard, of Geneva, N. Y., Vice-President Westen, New York Horticultural Society; Prof. H. E. Vandeman, ex-U. S. Pomologist; Dr. Saunders, of the Dominion Experimental Farms; the Hon. John Dryden, and many others have been invited to be present and take part in the discussions, and topics of extreme interest will be discussed. Programmes may be had on application to the Secretary.

QUESTION DRAWER.

Gnarly Duchess Pear.

1188. SIR,—I send you by this mail a sample of Duchess pear which is all gnarled and distorted by little hard spots which grow in it at the skin. This pear, as you see, is about one-quarter the size it should be, showing the dwarfing effect of the pest. Will you kindly state through your columns what it is and what remedy can be applied. My Seckels and Duchess are both badly affected every year, and it is probable that other readers of the Canadian Horticulturist are bothered by it also.

London.

W. E. SAUNDERS.

Without doubt this pear is affected with stings of the curculio, a very common fault with the Duchess. Where this pear is grown upon rich land, well fertilized and cultivated, it overgrows all such injuries and is large, smooth and beautiful; but where weakly and stunted in growth, the fruit is usually small, knotty and worthless.

Watermelon Vines Failing.

1189. SIR,—Can you give me any idea as to cause of my watermelon plants wilting and dying? They grew vigorously and appeared quite healthy until they would cover a space of two or three feet square and then very suddenly dry up and die. Also please give remedy for same and much oblige.—Yours truly,

Iroquois.

A. B. CARMAN.

It is very difficult to account for the dying of your correspondent's melon vines without knowing more of the particulars. The trouble might be due to drought; but it is more likely that the vines were killed by little borers working in the roots. The striped cucumber beetle (*Diabrotica vittata*) which devours the foliage of the young plants, is very often found quite as injurious in its larval stage, when it is a slender worm-like creature and bores into the roots and stems of the plants. This is one of the difficult insects to contend with in both the larval and adult stage. Probably the most satisfactory method is to cover the melon vines with netting supported on a light

wooden frame. After the plants have reached the second or third leaf the covering will be unnecessary.

O. A. C., Guelph.

H. L. HUTT.

Sample Apples.

1190. SIR,—I send you by express four kinds of apples, marked 1, 2, 3, 4. Please name them. Harriston.

I. LIVINGSTON.

No. 1 is McIntosh Red, No. 2 resembles Cranberry Pippin, No. 3 resembles Seek; the other one we do not recognize.—EDITOR.

White Bougere Rose.

1191. SIR,—Is this rose hardy enough to live out of doors during winter?

Annapolis, N. S.

E. D. ARNAUD.

The White Bougere is a tea rose, needing good heavy protection here at Hamilton, and would no doubt need the same in Nova Scotia. We would prefer taking up the plant and potting it.

Hamilton.

WEBSTER BROS.

Pruning Plum Trees.

1192. SIR,—I have some young plum trees which bore fruit for the first time this season. The trees were purchased for "Weaver," but turned out a large and very fine yellow plum, not ripening until about the 15th Sept. The trees have grown into a very straggling shape, and seem to me to require pruning. Will you kindly let me know through your columns the best season and manner in which to prune them.

Yours truly,

ARMON BURWASH.

All fruit trees need pruning, although the plum and the cherry need much less than the peach, pear and apple. The pruner has two objects in view, (1) the form of the tree, (2) the equal distribution of bearing wood. It is evidently unwise to allow branches to cross one another or to grow lop-sided. A little wise cutting will regulate this. Then a common fault with fast-growing varieties, especially with the Japans, is the rank growth of young wood, which soon make

long branchless arms. These may be shortened back annually, with judgment, and the small branches resulting can be thinned as may seem necessary. The fruit is borne, for the most part, on small spurs, which are

formed along the shoots of wood from one to three years old; these therefore should be carefully preserved, and such young wood always encouraged as will furnish those for the successive years.

Open Letters.

Seedling Peaches From Jarvis.

SIR,—Herewith I send you two samples of a seedling peach that is now four years old, and fruited this year for the first time. The tree is a very vigorous grower, thick heavy leaves, and seems to be very hardy. It is now a tree of about twelve feet high and of good stocky growth. Last winter my Elberta and Crosby Early were entirely killed but this came out all right. This year, when in full bloom, we had on two nights very sharp frosts, and on the last one it froze ice $\frac{1}{4}$ of an inch thick, and yet I have forty-three very handsome peaches. The specimens I send you are one of the best on the tree, and one of the smallest. This year there is no small ones, they all seem nearly alike.

THOS. H. LEWIS, L. D. S.

Jarvis, Ont.

Plums in Cape Breton.

SIR,—I am sending herewith by parcel post samples of two varieties of plums, and will be greatly obliged if you will name them for me.

My plum trees were very heavily fruited this year, but the great storm which played such havoc in other parts of North America destroyed a number of my trees, and a very severe frost on the night of September 20th completed the work which the wind began. The greatest damage

was done the Lombards, which were very heavily laden with fruit, and, being weak and open in the crotches of the trunk and branches, were the first to succumb to the force of the wind, they also suffered the most from the frost. I notice that the blue kinds are not so badly damaged by the frost as the yellow ones. After several years' experience with Japanese plums I have come to the conclusion that they are not suited to this locality. I have several trees of Abundance which should have been bearing fruit for the past four years, but so far they have not borne a dozen plums. Burbank gave me a few very pretty samples, and while they are interesting they are not profitable. There is another Japanese variety, the name of which I have lost, which bore a fair quantity of fruit and ripened early—the first to ripen in my orchard—but the fruit, unfortunately, is of a very poor quality, tasting something like chokecherries. This latter variety is the only one of the Japs on which I have seen black knots. So far I have managed to control the knots by cutting them off and spraying the trees. I never pass a knot without attending to it. I keep a Waters' Tree Pruner in the orchard all the time, and with it I can reach any knot and cut it off, and placing it in my coat pocket carry it to the house and put it in the kitchen stove.

Yours truly,

D. S. McDONALD.

Glendyer, C.B., Sept. 24.

Our Affiliated Societies.

As the winter season of comparative leisure from the worry and push of fruit season is at hand, we hope there will be special activity among our horticultural societies. An autumn flower and fruit show in October, when all other fairs are over, and when the coleus and the geranium and other plants are being lifted for removal to their winter quarters is most opportune; or a chrysanthemum show in November, with winter apples and winter pears.

How the members do appreciate such an exhibition when money getting is not the object of the exhibition, only to help out the general good, and where the money is spent for the equal good of every member.

The Grimsby Horticultural Society has this year an exhibit of this character. It is an evening affair, just lasting from 7 to 10 o'clock, with orchestral music, and each member who has paid for 1900, or who pays in advance for 1901, is to receive a

collection of eight Narcissus bulbs, all different. Another floral show is always held toward the end of April, at which the spring plants are given away. We commend this plan to all our societies.

We clip from the reports of the various societies all the news we think will prove of general interest.

LINDSAY.—The directors of this flourishing and popular society offer to the members for 1901 the following advantages:

First—Each of the first one hundred persons who pays the sum of \$1.00 to the secretary as a membership fee for the year 1901 shall receive the following collection of bulbs and tubers, especially adapted to pot culture, for winter and spring blooming. The hyacinths are imported direct from Holland by Mr. E. Gregory, who will also supply the gloxinias. Mr. E. Maxsom, Lindsay's popular florist, will supply the cyclamen. The names of these men are a guarantee that the stock will be good.

4 Tuberous rooted Begonias, 40c.

5 Hyacinths in assorted colors, 50c.

2 Cyclamen in colors, 40c.

1 Gloxinia, 15c.

These are catalogue prices.

F. FRAMPTON, Sec.

NIAGARA FALLS SOUTH.—The Niagara Falls South Horticultural Society held a very successful fern exhibit in their hall, when the following contributed plants: Mrs. Land, Mrs. James Wilson, Mr. Robertson, our secretary; Mr. George Piper, florist, the village, and Mr. R. Cameron, the park. All the above showed beautiful well-grown specimens, and Mr. Cameron showed a handsome specimen of *Adiantum farlensis*, also a handsome begonia named *Hagieana*.

This society meets twice a month, and the directors are very attentive. The one night is for business, the other for the public, when papers are read on different subjects pertaining to gardening, where the public join in the discussions that follow. There have been some very able papers read by some of the lady directors lately. One subject was: Which were the best twelve window plants, and their reason for thinking so? Another was the best twelve annuals and why did they consider them the best.

A FRIEND OF HORTICULTURE.

PICTON.—The bulbs are here for the Fall distribution.

Each member receives twelve, consisting of 3 best exhibition Hyacinths, and 9 Narcissus Vox, 2 Orange Phoenix, 3 Double Daffodils, 1 Sir Watkins, 1 Horsfeldi, and 1 Golden Spur, amounting to 1236 bulbs for the 103 members on this year's list. If the members will kindly call or send to the Secretary's office, Mr. Walter T. Ross, they will receive their package of bulbs.—*Picton Gazette*.

KINCARDINE FLORAL EXHIBITION.—The annual exhibition of the Kincardine Horticultural Society was held on Friday, the 21st September, in the town hall. The floral display and incidentally the management of this year's exhibition was under the careful supervision of Mr. Joseph Barker, to whose enthusiastic and indefatigable efforts the success of the show must in large part be attributed. The directors assisted in arranging the display. The flowering and foliage plants made a very attractive exhibit and the many members of the society who, with their friends, flocked to enjoy the spectacle, were much gratified at the undoubted evidence of progress furnished by the exhibition. The Kincardine brass band was in attendance and beguiled the sightseers with sweet music. The horticultural society is doing a very worthy work in fostering interest in the garden and orchard and the local branch need not feel ashamed of the manner in which it emulates its larger sisters. The children's flower league made a splendid display. The president of the society is S. W. Perry, the secretary Joseph Barker.

TORONTO JUNCTION.—The Toronto Junction Horticultural Society held their first annual flower exhibit in the auditorium of the High School on Saturday, September 15th. The flowers open to competition were from seeds donated to the Public Schools by the society, and were asters, zinnias, phlox, nasturtiums and petunias, in all of which there was a creditable show. There were also many pretty house plants lent for the occasion. Mrs. Perfect contributed a fine spray of clematis paniculata and palms; Mr. Arch. Gilchrist showed a handsome specimen of the new chenille plant in full bloom. Rennie Bros. furnished a pretty collection of asters, dahlias, petunias and gladioli. Mr. Gilchrist also had a pretty collection of greenhouse plants on exhibition, and a very handsome fern was shown by him. Miss Macmillan, Mrs. Geo. Heintzman and Mrs. Cook were also contributors of pretty plants. The attendance was all that could be expected, and in the evening the room was crowded. Temple's orchestra furnished music during the greater part of the exhibition.

THE FOREIGN MARKET REPORTS.

No doubt the bulk of our apples, of ordinary grades up to No. 1, or 2½ inch apples, must always be sold in barrels. It would not pay to expend the labor and money upon them which would be necessary to put them up in cases, and even if they were boxed they would not command any better price than the same stock in barrels. But extra grades of apples, put up in special packages, will command special attention and make such a reputation for high grade Canadian apples as has already been made for her cheese by similar methods. The following quotations are for ordinary first or second grade apples such as are usually exported in barrels :

Mr. Eben James, of Toronto, representing Woodall & Co., Liverpool, writes Oct. 12th :—

A decided change for the better has taken place and the outlook which was blue some time ago has been reversed. Present cables, though high, should not be accepted as a criterion of future prices, though they show that British buyers are appreciating the good quality of our fruit and we may anticipate a brisk demand which even at considerably lower prices will show a good profit. Also, unlike last season, the war is now practically over and there should be nothing to spoil the sale of what is, in a measure, a luxury.

There are other reasons which brighten the outlook. There have been numerous enquiries from the U. S. for our apples and a few contracts made, showing that their crop either in quantity or quality is not what was expected; also the report we circulated about the English crop of hard fruit being ruined, is undoubtedly true, as prices show; and the storms here did great damage and reduced our crop materially.

The apples are held practically by a few hands in Canada and our advice to our friends is not to be induced to sell out their holdings as we believe the prospects are bright and there is every reason to expect that much of the money lost last year will be made up. If you are bound to sell here, kindly advise me before doing so.

Woodall & Co., Liverpool, write Sept 29th:

The season's arrivals to date 24,940 barrels, have consisted of early varieties, and during the past fourteen days a fair quantity of Baldwins have been shown, but were of course green and immature, and have come into competition with the English crop which is a large one. and all our

markets are glutted with them. It is therefore a matter of little surprise that similar class fruit such as is now arriving from America and Canada are not sufficiently superior in quality to induce satisfactory prices, although there have been occasional exceptions. Each arrival is showing some improvement, and at the same time the glut of home production is disappearing, so that it may confidently be expected that in a short time imports will be of good quality and condition, and prices paid at recent sales would suggest that even now the trade are giving American and Canadian fruit the preference.

PRICES AT LAST SALES.

	Firsts	Seconds & Slack.
NEW YORK—Baldwins.....	11/6 to 14/	8/ to 12
Kings.....	15/ to 21/	12/ to 14/
BOSTON—Baldwins....	10/ to 12/	8/ to 10/
{ Ramshorns, }		
{ Hubbardston }	11/ to 14/9	8/ to 10/
CANADIAN { Gravenstein }		
{ and Blush }	14/ to 19/6	12/ to 14/6
Greenings....	11/6 to 14/6	10/ to 12/6
Snows.....	15/ to 16/6	13/ to 14/6
Colverts.....	12/ to 14/6	11/ to 14/

Wasty sell 2/ to 3/ under quotations for slack.

James Adam, Son & Co., write September 9th :

It is now more than a month since the first apples arrived from your side, and while the quantities were very small at the outset they have gradually increased, the total to date being 24,921 barrels, as compared with 41,195 barrels for the same period last season.

Needless to say, there has been great irregularity in the samples, some of the fruit being of only indifferent quality, as well as faulty in condition, still on the whole we should say that for first arrivals they have been fully up to the average, and from present indications we are inclined to hope for something good in the matter of quality later on.

New York up to the present has been our largest contributor, but it is doubtful if this will remain so for long, as the crop in the New England States is said to be very large, and in all probability we shall be getting more important consignments from this quarter very soon. So far the New York Baldwins have been wanting both as regards size and color, and although future arrivals may, and no doubt will, show an improvement as to the latter, the former defect is less certain of being remedied, indeed we hear already that the variety generally promises to run small this season. Of course with so many green apples of English growth available, our market has not warranted high prices being obtained for this fruit, still there has been a fairly good outlet at 7s. to 13s. 6d., while Kings

have sold up to 21s. 6d. per barrel, which it must be admitted is very encouraging.

From Boston the most appreciated variety has been the Ramshorn, which, owing to its good color, met with good enquiry, at prices ranging from 11s. to 14s. 9d, though other varieties where at all good have also met a ready outlet, Baldwins making from 6s. to 12s. 8d., and Hubbards 10s. to 13s. 3d. per barrel.

Canada has sent some good Gravensteins and Colverts, the former of which sold from 16s. to 19s. 6d, and the latter 11s to 14s. 6d—both very creditable results—but more surprising still, perhaps, are the prices paid for Greenings, which sold yesterday from 12s. to 14s. 6d. per barrel.

From these results it will be seen that although English apples are plentiful, there is at all events an outlet for fruit from your side, in fact, as we have already pointed out, American and Canadian varieties when of good quality and attractive appearance, always command attention no matter how plentiful the home crop may be, and from present aspects the outlook is much more favorable than it appeared to be at the beginning of last month when we issued our prospective report. Of course great care will have to be exercised in the selecting and packing of fruit for export, but in the interest of all operators, and especially those who experienced losses last year, we trust the season after all may not prove altogether unremunerative.

Messrs. Garcia, Jacobs & Co., London, cable :

Our market is now ready for some of those good Canadians. English fruit is not of as good quality as it promised to be earlier in the season. We look for an active demand at fair prices, so long as receipts are not too large. While the above prices are accurate market quotations, shippers will do well not to expect a continuance of these high figures after the present exports are very materially increased.

Messrs. Simons, Jacobs & Co., Glasgow, cable the following quotations for good sound apples under date of October 5th :

Baldwins, Spies, Spitz, Cranberry Pippins, Golverts, ruled from 13s. to 15s. 6d. ; Kings, 18s. to 23s. ; Greenings, 14s to 17s. ; Ribstons, 12s. to 14c. ; Gravensteins, 19s. to 19s. ; Jenetings, 11s. to 14s. A few extra fancy apples made a little more money. Common grades and fruit out of condition ruled from 2s. to 4s. below the lowest quotations. The demand is very active for good well-packed fruit.

The quality of the Canadian apples this year

thus far has been so good that notwithstanding large supplies of English and continental fruits, early Canadian apples have met with an extraordinary demand.

Mr. W. N. White, auctioneer for Messrs. Dennis & Sons, write :

England, France, Germany, Holland, Belgium and Italy have the largest crops in my recollection.

English crops, being so large, lack quality ; present prices are very low, the lowest I have ever known, and all kinds of cooking fruit must be very cheap all the season. Good dessert apples are not so plentiful, and any pretty colored stock at a moderate price should sell freely, provided the supplies are not too large. Prices, of course, must depend on the supplies, and if you send us as many as you did in 1896, you will not even get 1896 prices. England only wants your best colored fruit ; small green, or any poor stock, must on no account be sent. Consignors must not forget that the charges of freight and expenses are the same on a barrel of rubbish as on a barrel of best selected fruit.

I notice in some of your papers that, because a few samples were sold at the Exposition in Paris at fair rates, some folk think there will be a market in France. Such is not the case ; she has the largest crop for years, all very healthy, and she cannot find a paying market. I dare maintain that apples consigned to France would not make freight and expenses.

Germany has enough apples for cooking purposes to last her till mid-summer, 1901. She will only want a short supply of red fruit, certainly not so much as in 1896. Do not be misled by those who have their own special "axe to grind."

Italy has an abundant crop, and will export a large quantity of good apples to Germany ; no other market is open to her this year.

Messrs. Dickhuth & Sohn, Hamburg, write :

In regard to the prospects for the sale of apples from your country in our market, we can repeat that we expect a ready sale for the first grade red keeping winter fruit, but for this first grade only.

We have a very large home crop of apples, which are of inferior quality compared with your best stock, and this will enable us to sell your best stock all right, but for seconds we shall have no demand whatever.

The apples you ship must be of first grade all through the barrel.

Do not begin shipments before the second part of October.



OUR BOOK TABLE.

HEDGES, WINDBREAKS, SHELTERS AND LIVE FENCES. A treatise on the planting, growth and management of hedge plants for country and suburban homes. By E. P. Powell. Illustrated, 12mo, pp 140, cloth. Orange Judd Co., New York. Price 50 cents.

A compact, practical handbook on the management of hedge plants and hedges has long been needed, and the demand for such a work is rapidly increasing. This neat and attractive volume is giving just that information which is needed by those who live in the country or who own suburban residences. It gives accurate directions concerning hedges; how to plant and how to treat them; and especially concerning windbreaks and shelters. Anyone who will follow the directions given will be able to avoid those errors which make most of our country places more or less haggard with half-dead orchards, shelters and hedges. It discusses fences briefly, as these are rapidly giving way to wire fences; but it enlarges on windbreaks, which are becoming of increasing importance every year. The illustrations are not only photographs cover-

ing the whole subject, but include numerous ground plans for laying out suburban lots and

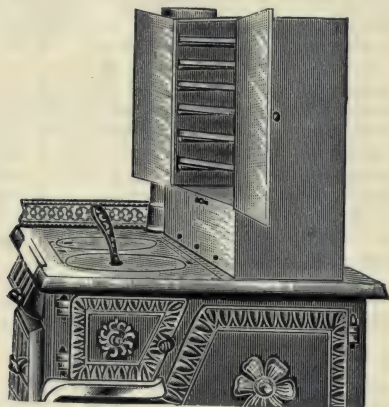
CATALOGUES.—Simmer's Annual Seed Catalogue, Toronto, 1900; free to patrons.

CATALOGUE CHAMPION FRUIT EVAPORATOR AND DRIER, for the evaporation of all kinds of fruits and vegetables. Manufactured by the G. H. Grimm Manufacturing Co., 84 Wellington street, Montreal, Que.

HOME MADE CONTRIVANCES for farm and garden, dairy and workshop. How to make 1,000 handy appliances and labor saving devices needed on the farm or about buildings, including racks, mangers, stanchions and troughs, vehicles, rollers, small tools, lawn appliances, wells, pumps, stump pullers, etc., fences of every description, hurdles and portable fences, bridges and culverts, gates, hinges, hedges, etc., etc. 350 pages, 750 illustrations. Orange Judd Co., New York, 1899.

CALENDAR OF QUEEN'S COLLEGE University, Kingston Canada, for the year 1900-1901. George Y. Chown, B. A., Registrar.

CHAMPION FRUIT EVAPORATOR



Dries all kinds of Fruits and Vegetables Produces a superior quality of clean, white fruit. It is made of galvanized iron, is fire-proof and portable.

FIVE DIFFERENT SIZES.

- No. 0—For use on any cooking stove.
- Nos. 1 and 2—Complete evaporators for home use. Also good bakers.
- Nos. 3 and 4—Complete evaporators of sufficient capacity for market use.

Catalogue and prices on application

THE G. H. GRIMM M'FG. CO.,

84 Wellington street, Montreal, Que.

WINTER.—This is a fine looking peach just beginning to ripen, October 6th. Last year it hung a long time after the Smock was gathered.

STAMMERING CURED TO STAY STAY!

LINTON ORTHOPHONIC INSTITUTE

Brockville, Can. High Class. Fully endorsed. Established 1891. **The only school for the cure of all phases of defective speech, requiring no fee until cure effected.** Open always. Stamp for Prospectus.

CHARLES MAJOR'S NEW BEAR STORIES.

The latest work of the author of "When Knighthood was in Flower" has been secured by The Ladies' Home Journal. As would be expected, it has to do with adventure—the experiences of some frontier children. There is a childish romance woven into the stories, and they will have a keen interest for boys as well as for their elders. Under the heading of "Blue River Bear Stories" Mr. Major's serial will begin in the October Journal.

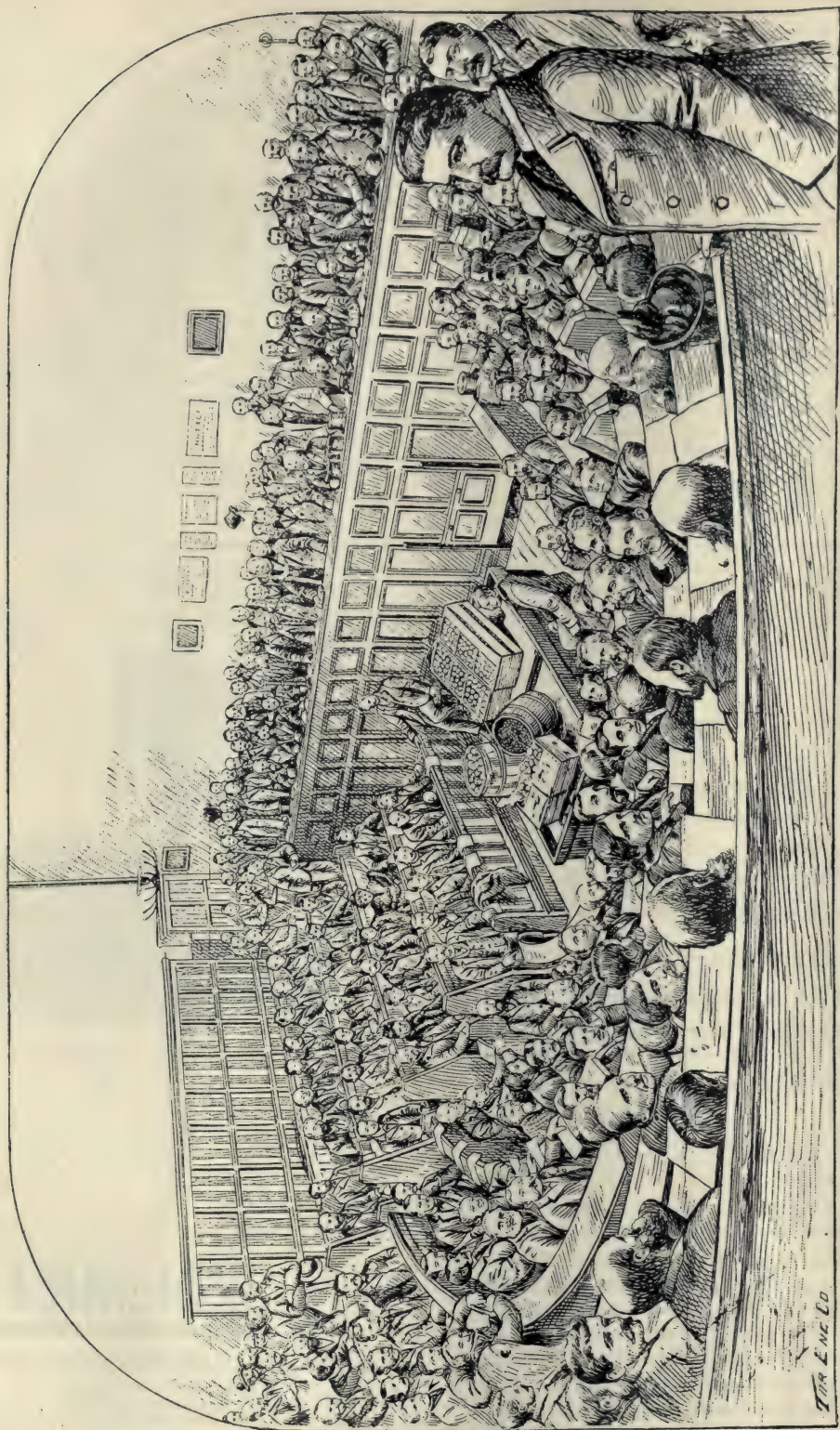


FIG. 1953. THE MANCHESTER FRUIT MARKET.

THE CANADIAN HORTICULTURIST

VOL 23

1900

No 12

** DECEMBER **

SUCCESSFUL EXPORT SHIPMENTS OF TENDER FRUITS.



OUR frontispiece will be an interesting one to Canadian fruit growers, showing, as it does the Manchester sale room for fruit. Here are collected merchant buyers from various parts, eager to purchase supplies for their special trade. Our goods are separated into lots according to grades and shipper's marks, and samples of each brought into the sale room and opened. If a brand is known as reliable, nothing further is necessary, but if unknown, or known with suspicion, the packages are emptied out on the table for inspection, and if found fraudulent, the whole lot is sold as such. The fact that so much of our barrel fruit has been found unreliable has had a most disastrous effect upon its selling price in Great Britain, and it is only by establishing our trade on a new basis with reliable grades, that we can expect to gain that popularity which our goods so well deserve.

This object has been before the Ontario Fruit Growers' Association for some years past, and the writer, being secretary of this Association and of the fruit experiment

stations of Ontario, has been asked to act in this particular for the extension of our fruit markets. On referring the matter to the Minister of Agriculture for Ontario, he expressed his willingness to aid us in every way possible. The export of peaches, pears and grapes being more vital to Ontario than to any other province, it was natural that our province should now exert herself in her own interests and carry to a successful issue the work so well begun in an experimental way by the Dominion.

Last year the writer was commissioned by the Hon. John Dryden to forward a few hundred cases of Ontario grown grapes to Manchester, to test the English market for our best varieties. The varieties selected were the Red Rodgers. They were packed 5 lb. veneer baskets, four in a case. As reported in our Fruit Experiment Station report, they were received in Manchester with great suspicion, and at first no one would purchase them at any price, but by and by the costers bought them gingerly and began selling them on the streets. Then they came and paid double the price

for the remainder of the stock, and our consignees, Messrs. B. W. Potter & Co., said that if we could have continued the shipments regularly with each succeeding steamer, they could soon work up a trade for Canadian grapes at a probable paying price; this firm offering them by private sale and not by auction.

This season Mr. Dryden extended the experiment to include other fruits, and fitted the "Trader" of the Manchester Line with

verton, W. H. Nelles, C. W. Van Duzer and S. M. Culp. In order to secure the cold storage space of 1,600 feet, it was necessary for us to combine and agree to fill it every time the Trader sailed. The apples were graded to uniform sizes and packed in half bushel cases. They arrived in Manchester in fine condition which proved how complete a success Hanrahan's system of refrigeration is, for the Astracan ripens in ordinary conditions a few days after it is

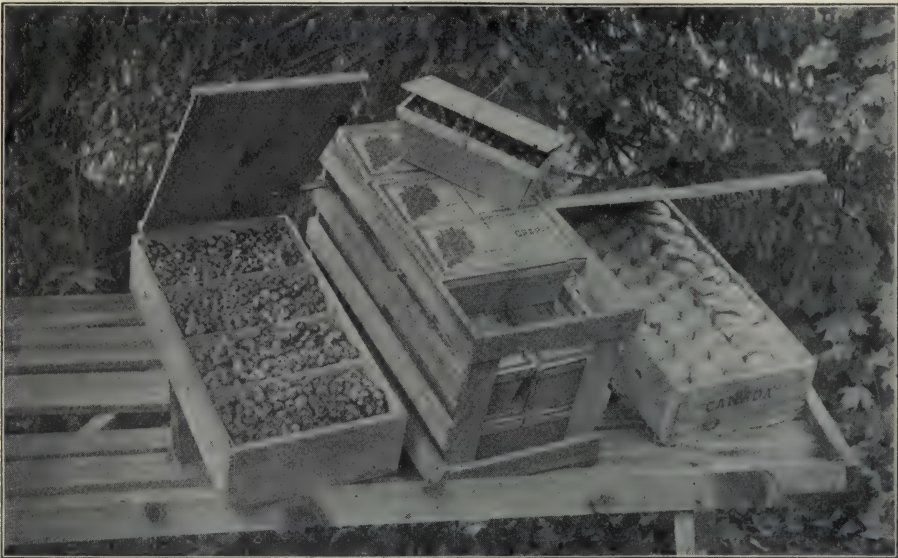


FIG. 1954. WILDER GRAPES AND KIEFFER PEARS PACKED FOR EXPORT FOR THE ONTARIO DEPARTMENT OF AGRICULTURE.

a cold storage compartment especially adapted for carrying fruits; he also fitted up a refrigerator car, after Hanrahan's patent, for the especial purpose of carrying fruit in perfect condition from the point of shipment to the steamer.

The first Trader shipment made was chiefly Red Astracan and Duchess apples, and was forwarded on the 25th of August. The following fruit growers united in making up the shipment, at their own risk, viz.: L. Woolverton, A. H. Pettit, E. J. Wool-

picked. Owing to the great crop of early apples in Great Britain, these perishable apples sold at 60 cents a case.

There were also some bushel cases of apples which sold for \$1.40 each, and some Wilson cases with fillers which sold for 96 cents each. One Wilson case containing one hundred Hales peaches sold for \$1.46.

The total proceeds of this shipment was \$438.91, a satisfactory amount were it not for the unusually heavy charges, which are considerably advanced this season owing to

the South African war. The following is a detailed list of charges ; Freight paid Manchester Liners, \$327.51 ; Manchester ship canal tolls and wharfage, \$13.96 ; cartage and portorage at docks and re-delivering, \$5.74 ; sampling and taring and clearing, \$2.48 ; marine insurance, \$2.52 ; market portorage, \$11.86 ; brokerage at 5 per cent., \$21.94 ; cable, \$3.90 ; amounting in all to \$290.01. This left only \$148.90 net, or a little less than we could have got for the same goods at home. However, we had the satisfaction of having our fruit reach the market in the very best condition, and of establishing a reputation for our fruit that will be worth millions to our fruit growers in the immediate future.

The following extracts from letters from the consignees, Messrs. B. W. Potter & Co., Manchester, regarding this shipment will be of general interest :

" Manchester, 12th Sept., 1900.

" Sir,—The shipment ex-Trader landed in capital condition and, if it had not been an extraordinary year, you would have had a very good return ; as it is we have been getting good prices compared to English fruit, which has been almost given away. We have not completed sales yet, but hope to wire you directly with the net result. Now we have pleasure to report on packing. Apples will do very well indeed with wax paper only, no moss or shavings, and packed only in bushel cases—half bushel cases will not pay you so well. Pears in paper and shavings and packed in halves are best. They took much better than the apples and we could have disposed of more. The case of peaches arrived in splendid condition but would not keep and was sold at once realizing \$1.46. Buyers do not like packages which they have to return. Some of the cases were packed too tightly and the fruit accordingly bruised. This is a mistake which we think might be avoided.

" The marking on the cases leaves room for improvement. Everything is done in such a hurry in our market that it is a distinct disadvantage having to examine a case carefully to find out the variety and grade of contents. We would suggest that you use the plain end of the case for mark, variety and grade, simply putting in bold typesay

L. W. KING
87 A NO. 1

leaving off all other lettering. You might use different colored ink for pears and apples."

" Manchester, 17th Sept., 1900.

" Sir,—We cabled you to-day as follows:—Thirty-six net. Pears 97c., bushels \$1.46, halves

61c.; Wilson's \$9.74, average gross proceeds, which we meant you to understand as thirty-six pounds net balance, the pears bringing 97c., bushel boxes apples \$1.46, half bushel apples 61c., and Wilson's patent cases 97c., with box \$1.22, average price. It is a very disappointing return we must admit, but considering the state of the market, the price is a good one. We send you the Shipping Gazette of the 15th inst., and draw your attention to page 10, from which you will see American apples have been fetching from \$1.22 to \$2.44 per barrel.

" The writer was present whilst the steamer Trader unloaded, and entered the cold chamber, finding it *perfectly dry*, and he considers that the fruit *could not have been carried better, the new arrangement of the brine pipes being a splendid improvement.*

" In nine years out of ten the return for fruit would have been splendid, and it is most unfortunate that you should have fallen across the tenth year.

" Your own fruit, on the whole, carried best, and we think you must have picked it in better condition, especially the pears."

The second shipment was made by the steamer Commerce, leaving Montreal September 15th, just in the nick of time for Bartlett pears, but too early for Elberta peaches. The fruit was kept in cold storage while the carload was being made up, and carried by the Hanrahan automatic refrigerator car to Montreal, and thence transferred to the cold storage chamber of the Commerce. There were in all 882 packages, and the total net returns were \$487.67.

The following is a detailed account sales of this shipment, showing the shipments of each shipper, and the selling price of the same :

Z. W.

1 case tomatoes	61
496 cases Bartlett pears, averaging 74c., \$1.95	\$464 13
56 cases apples, averaging 97c., \$1.25 ..	62 82
5 " peaches	13 39

A. H. P.

65 cases pears	59 13
25 " apples	14 32
11 " peaches	22 40

E. J. W.

118 cases pears	122 74
-----------------------	--------

B. B.

110 cases pears	93 50
-----------------------	-------

	\$853 04
Charges	365 39

Net proceeds	487 65
--------------------	--------

Mr. Peter Byrne, Ontario Government Agent at Liverpool, writes concerning this shipment, October 5th, 1900 :

"Sir—The Hon. John Dryden having informed me that you would like to hear from me regarding the condition of your shipment of fruit on the S. S. Commerce, I am glad to inform you that I found it very good indeed. The fruit was very cold, and some of it very 'sweaty' when opened, but otherwise it was all right, every case inspected being sound.

"The Elberta peaches were rather green and

Those shipped by D. J. McK. were to a considerable extent damaged, having, perhaps, been packed over ripe. Messrs. Pettit & Son's lot (two grades) were in about the same condition, a good many in some of the cases being bad, and others being all right. Part were packed with wool and paper, and part with paper and shavings. I am inclined to think the wool packing is of doubtful benefit

"I find that some experienced fruit dealers here have no fault to find with the present modes of packing, and would suggest no alteration whatever.

"Mr. Potter secured the temporary use of a fine



FIG. 1955. BUSHEL BOXES OF APPLES, HALF BUSHEL BOXES OF PEARS, AND PACKAGES OF GRAPE, PACKED FOR EXPORT FOR ONTARIO DEPARTMENT OF AGRICULTURE.

immature looking, and consequently less attractive than the Crawfords sent by Messrs. Pettit & Son. Some of these had probably been a little too ripe when picked, as a good many of them were in various stages of decay when opened. Whether the wool used in packing had anything to do with it I could not say. But the majority of the Crawfords were in perfect condition, and have been much admired for their beautiful and attractive color.

"Your case of tomatoes turned out sound but very tender in the skin, and soft. It is well you did not send any considerable quantity, as the market is glutted with foreigners.

"The pears sent by E. J. W. all turned out well.

show window in Manchester for a display of the fruit; and I have done the same here. I brought from Manchester a Wilson case with a careful selection of pears, apples and peaches, but, finding these were too few to be effective, I got four half-cases from Mr. Shuttleworth, in Liverpool, who is the consignee of the other shipment ex-Commerce, and with their aid got a good and effective exhibit for the show window of the C. P. R. offices. It is attracting an immense deal of attention. I invited all the Press of the city to come and inspect and taste the peaches, which, being a great novelty here, form the most attractive part of the display. The great mass of the people here actually think that they are grown

under glass, and are astonished, if not incredulous, when they learn that they grow in the open air like pears, apples, etc.

"One of the wholesale salesmen in Manchester entrusted with the disposal of your fruit, told me that he had sold 20 cases of pears in an hour, and every one of them was opened and found in prime condition. The price was \$1.22 per half bushel case.

"This is a very abundant fruit year in this country, and glutted markets have kept the prices low. I will send you papers containing press notices of our exhibit. If you are sending any grapes with the next shipment, I intend to make a public display of them also, and will urge Potter to do the same in Manchester."

The following letter from Messrs. Potter & Co., the consignees, is also of interest. It is dated Manchester, October 6th, 1900 :

"Sir,—The major portion of your Commerce shipment has been sold, the Bartlett pears fetching from 97c. to \$1.22 a case, with some wasty ones at 49c., and a few absolutely worthless. These latter we think must have been against the brine pipes and the temperature has been too cold.

"Tomatoes will not pay for sending; they are too cheap here. Your box fetched 61c. The sixteen cases of peaches have sold for \$1.46 to \$3.17 a case, but a very large proportion of the fruit was bad. Details of all marks to follow. The bushel cases of pears were too large and don't sell well.

"Peat moss will not do for packing. It does not keep the fruit well and certainly looks badly when cases are opened. Keep to the fine shavings and paper. We enclose sample of paper the Californian pears are wrapped in and they carry splendidly. The wax paper also does well and is good looking.

"The peaches seem best packed without wadding. The Elbertas are soundest but the Crawfords take much better: they are so showy. Some fruit has been picked too green to ripen.

"The apples of course came splendidly. Please send in future full details of marks, grade, variety and size of package. We had great difficulty in sorting out en quay. A good consignment arriving a couple of weeks before Xmas would do splendidly we feel sure."

Under date of October 10th, Messrs. Potter & Co. write :

"Sir,—We cabled you to-day 'Net 105.' This is the approximate net proceeds of the 882 packages landed. The charges have not all come in yet, but we do not think the actual result will vary much from this figure.

"We are sorry the result does not equal the 97c. you wanted to make the shipments pay, but you have certainly made more by this fruit than any other people in the market. More than this, you have given the fruit a good standing and the public like it and will ask for it again, so that the result cannot be measured merely by the cash return."

The following is an extract from the "Journal of Commerce," Liverpool, dated October 8, 1900,—

"The enterprise of our Canadian cousins has for many years been a factor of considerable importance in regard to the trade of this country, for Canada has year by year been sending supplies of various kinds in ever-increasing quantities. For some years past attempts have been made by Canadian fruit growers to find a market for their surplus produce on this side of the Atlantic, their efforts meeting with varying success, but at last there is reason to think the time has come when Canadian grown fruit will compete on exceedingly favorable terms with the home grown article, and this not only in the harder class, but also in fruits of the most delicate description. When the earlier shipments of fruit were made a few years ago the result was almost sufficient to give the project a death-blow, for the conditions under which the produce was carried were not at all such as to improve the fruit during its passage across the Atlantic. The butter man of Montreal required a temperature of 22 degrees for his produce, the beef exporter wanted 28 degrees, the fruit could not do with anything under 36 degrees nor much above 40 degrees. Consequently when all these classes of goods were placed in the same cold chamber on board the steamer, some portion of the consignments had to suffer, and the fruit, fared the worst of the lot, for when it was opened on this side and exposed to the warm air of this country, the tissues of the fruit burst and it wasted away within 24 hours, the experiment thus ending in failure. The matter was reported to the Canadian authorities, and after some further experiments, through the efforts of Hon. Sydney Fisher, the Dominion Minister of Agriculture, shipments were made in steamers which provided the temperature requisite for the proper carrying of fruit, the produce being carried in a special chamber cooled by the Linde system. The improvements have, of course, been gradual, and success came very slowly, but it is thought now that the general principles under which fruit can be carried to the best advantage are pretty well known, and that only in minor details can the system be improved. One of the important points connected with the carriage of this class of produce is the necessity for keeping it at a temperature which, while sufficiently low, is not allowed to vary to any extent. Considerable difficulty has been experienced on this point, for the best-meaning engineer may temporarily neglect this portion of his charge, and the mischief is done, in most cases beyond repair. A thermograph, or self-registering thermometer, is now provided for each chamber fitted for the carriage of fruit, and this provided a record of the actual changes of temperature during the voyage; thus it can be seen at a glance whether the fruit has been carried under proper conditions or not.

"A recent shipment of fruit by the Manchester Commerce arrived in this country in the pink of condition, and samples have for the past week been exhibited at the office of Canadian Pacific Railway, James street. There passers-by were

astonished to read that all the fruit exhibited, which included some of the finest peaches imaginable, was grown in the open air. One fancies the Canadian climate to be more or less like a severe Christmas in this country, but during the summer season the land is a veritable garden, where flowers and fruits, which it is only possible to produce in hothouses in this country, are to be found in every garden. The fruit sent by the Manchester Commerce is grown at Grimsby, Niagara District, Ontario, a place famous for its orchards and vineyards; and here every description of fruit, including the finest Williams and other varieties of pears, and many kind of peaches, are grown in the open air. Those on view at the offices of the C. P. R. on James street were a continual source of attraction to passers-by, and some were so carried away by the exceptional appearance of the fruit as to be induced to enter and attempt to purchase what was only exhibited as samples. In Canada the fruit is carefully picked, the peaches when almost ripe, the pears and apples somewhat earlier, and as carefully packed, being forwarded by rail to the port of shipment in refrigerator cars. These cars are specially fitted for the purpose, and, being properly attended to, the fruit is carried through to the steamer in excellent condition. Of late owing to the splendid arrangements on most of the newer boats crossing the Atlantic, the carriage to this country has been perfectly satisfactory, and the result is that the Canadian growers have been able to put their fruit on the English market in perfect condition. It has been well in demand wherever offered, and has been sold at prices which equal, when they do not exceed those paid for the more hardy, but less juicy and delicious, fruits from California. Orders have already been received for large quantities of Canadian fruit, which is only being shipped. This includes some consignments of Canadian grapes, which will be put on the market in the course of the next two or three weeks."

Shipment No. 3 was by the steamer *Trader* again, sailing October 5th, but this was too late a date for peaches or Bartlett pears, both of which were in season for the previous shipment of September 15. Added to this the ice at the Grimsby storage gave out, and the weather came on exceedingly warm while we were packing. Under these unfavorable conditions we thought best to send forward only about sixty cases of peaches, which arrived in Manchester quite over ripe, and the same was the case with the few cases of Bartlett pears, but the principal part of the shipment consisted of fall apples, such as Ribston, Fall Pippin, Blenheim and King, which sold at from \$1.50 to \$1.75 per bushel box; and of such pears as Duchess, Louise, Anjou and Sheldon, which

also arrived in fine condition and sold well.

There were also some red and black Rogers grapes, about two tons, sent forward in the storage chamber. These arrived in fine condition, but, as usual, failed to bring paying prices.

Mr. P. Byrne, Ontario Government Agent, writes to the Department of Agriculture at Toronto, on the 24th of October, as follows:

"The grapes, speaking generally, were in very good condition. An occasional sample was slightly wet or mouldy, but, on the whole, they looked attractive and sound.

"The pears were generally good also; some Louise Bonnes from 'Bonnie Brae' had several bad fruits in each 'sample.' The Bartletts were also soaky, but the other varieties were in excellent condition; especially the Duchess pears, which were all good without exception.

"I assisted in preparing and arranging an exhibit of the fruit at Manchester, and brought with me selected samples for a display in Liverpool similar to the one which was so successful in connection with the shipment brought by the Manchester Commerce. The samples I am showing consist of a tray of twenty-five very fine Elberta peaches—all that was fairly sound in two entire cases! Also two cases of red and black Rogers' grapes, two cases of pears and one case of apples. They make a very handsome and effective display and constitute a most valuable object lesson as to what our province is capable of producing. I sent notices to the press announcing the exhibit, and the consequence is continuous crowds as before inspecting and admiring the fruit."

Messrs. B. W. Potter & Co., the consignees, write on the 27th of October as follows concerning the second "*Trader*" shipment:

"We have now the pleasure to report upon the shipment per Manchester *Trader* of grapes, pears, apples and peaches. The latter were nearly all spoiled and we should say that they were packed too ripe. Besides this we see the Wilson cases are not ventilated at all. Kindly examine them and you will see that this is correct. It must have a serious effect upon the fruit.

"The Duchess pears have carried splendidly and taken much the best with buyers, prices varying from 73c. to \$1.40 per case. The Louise turned out very wasty, but the White Doyenne and Anjou were mostly sound. The Bartletts were almost wholly rotten, and we should judge had been picked at the wrong time, or stood before being placed in store. The prices will give you a good idea of the public taste.

"All the apples were in excellent condition, the Ribston's fetching the best prices—\$1.71 per bushel case, with Blenheims and Kings \$1.58, and Fall Pippins \$1.46. We could have disposed of any quantity of these fruits.

"The grapes arrived in very much better con-

dition than last year, their being hardly a bad case. We think the boxes with 4 baskets of 5 lbs. each is the better package, and, as we have said before, the Black Rogers will always sell the best. With a little perseverance, these grapes should be a success, but we want a steady supply for the few weeks the season lasts."

Whether our grapes will ever become popular enough in England to make it profitable to export them seems a question. At first the dealers would not buy them at all, and our consignees had to persuade the costers to take them out on the streets for sale, but bye-and-bye they commanded a small price, which is slowly creeping upwards. But, even yet, the price is not equal to the value of these grapes in Ottawa or Montreal. Here is a report of the sale of 3,360 four pound baskets of Red and Black Rogers carried over in a ventilated compartment and sold in Manchester the 23rd of October :

Import mark or brand.—S. M. Culp, Fruit Grower, Beamsville.		
Lot		Baskets,
1	Red Rogers.....	60 6c
2	".....(12)	60 6c
3	Black Rogers.....(12)	36 8c

Import mark or brand.—D. T. Mackinnon & Son,
Bonnie Braes Farm, Grimsby.

Lot		Baskets.
4	No. 9 Rogers.....	60 7c
5	" ".....	60 6c
6	" ".....(12)	60 6c
7	No. 15 Red Rogers.....(12)	60 9c
8	" 4 Black Rogers.....	48 6c
9	Virgennes.....	60 5c
10	".....	60 5c
11	".....	60 5c

Import mark or brand.—E. J. Woolverton E. J. W. Grimsby.		
Lot		Baskets.
12	No. 15 Red Rogers.....	60 5c
13	" ".....	60 5c
14	" ".....(12)	60 5c
15	No. 9 ".....	60 6c
16	" ".....(12)	72 6c
17	No. 44 Rogers.....(12)	60 8c
18	Salem.....(12)	48 4c

Import mark or brand.—M. Pettit, Mountain Valley Orchard, Winona.		
Lot		Baskets.
19	Lindley.....	60 6c
20	".....	60 6c
21	".....	60 6c
22	".....(12)	96 6c
23	Wilder.....	60 8c
24	".....	60 8c
25	".....(12)	48 8c
26	Agawam.....(12)	36 7c

Import mark or brand.—Isaac Geddes, Winona.		
Lot		Baskets.
27	No. 9 Red Rogers.....	60 7c
28	" ".....	60 7c
29	" ".....	60 7c
30	" ".....	60 7c
31	" ".....(12)	72 7c

Import mark or brand.—N. Keep, Winona, Finest Quality Fruit.		
Lot		Baskets.
32	Red Rogers.....	60 6c
33	".....	60 6c
34	".....	60 6c
35	".....	60 6c
36	".....	60 6c
37	".....	60 6c
38	".....	60 6c
39	".....(24)	60 6c

Import mark or brand.—J. W. Smith, Fruit Grower, Winona.		
Lot		Baskets.
40	Red Rogers.....	60 6c
41	".....	60 6c
41a	".....	60 6c
42	".....(12)	84 6c
42a	Black Rogers.....	204 6c

Import mark or brand.—E. D. Smith, Winona.		
Lot		Baskets.
43	Black Rogers.....	60 5c
44	".....	60 5c
45	".....	60 5c
46	".....	60 5c
46a	".....	60 5c
47	".....(12 Red) (12)	72 5c
48	".....On Shew	104 5c

These prices amount to about five and six cents for a 4lb. package, beautiful little bas-

kets with covers and wire handles, costing without the fruit about three cents each ; the price, therefore, leaves only about one cent per pound for our very best Rogers grapes, which are worth from two to three cents a pound in our own vineyards !

We would think from this shipment that we would never be able to export our grapes with profit. A shipment, however, of thirty-nine 50lb. crates, each containing twelve little four pound baskets of Rogers, either red or black, and ninety-four 20lb. cases, each containing four 5lb. baskets, as shown in our illustration,

7 cases at	44½	\$ 3 12
54 " "	48½	26 30
11 " "	54½	6 02
9 " "	79	7 12
13 " "	79	10 29
24 crates "	1.22	29 22
13 " "	1.34	17 41
2 " "	2.43½	4 87

\$ 104 35

CHARGES

Freight	72 10
Manchester canal tolls and quay charges	3 33
Cartage, portage, warehousing, sampling, sampling and taring, clearing and forwarding, warehouse rent, fire insurance	10 00
Brokerage at 5 per cent	5 21

\$ 90 64

\$ 13 71



FIG. 1956. MANCHESTER SHIP CANAL.

and forwarded October, 5th, in Mr. Dryden's compartment on the "Trader" to Messrs. B. W. Potter & Co., Manchester, brought much more encouraging results, and our consignees write that, if we could continue regular shipments weekly and not too many at one time time, they think they could gradually work up the price to a paying basis.

The following is our account sales of grapes in our third shipment, the second on the Trader. The varieties were mostly Lindley and Wilder, and were grown by N. Keep, Winona, J. A. Pettit and L. Woolverton, Grimsby.

The graded apples sold remarkably well, Ribston Pippins bringing \$1.71, King and Blenheims \$1.58, and Fall Pippins \$1.46.

The pears also did splendidly, except Bartletts, which were a little out of season for shipment. Duchess sold at from 97c. to \$1.40; Bartlett, at from 36c. to \$1.22 ; Louise Borne, at from 24c. to 91c.; White Doyenne, at from 85c. to 97c.; Anjou, at from 73c. to \$1.15 ; Howell, at 85c.; Sheldon, at from 61c. to 85c.; Beurre Clairgeau, at from 73c. to 85c.; Lawrence, at 97c.; Fearless at from 85c. to \$1.09.

The peaches were past season on October 5th, and had to be kept in ice storage a couple of weeks before sailing. Consequently they did not carry as well as those sent in the previous shipment. The varieties were Late Crawford, Smock, Willett, Elberta, and they did not pay freight charges. We have confidence, however, in peaches that, if picked firm and sent forward immediately, we can land them in perfect condition, and realize long prices ; and the same is true with regard to our tender Bartlett pears.

The following is a general summary of gross sales and charges for the whole cargo, the latter of which are altogether too

high and must be reduced in future, if the trade is to prosper :

757 cases pears	\$ 718 69	
44 " apples	68 20	
133 cases and crates grapes...	104 77	
52 cases peaches.....	24 00	\$ 915 66

CHARGES.

Freight	\$ 351 73	
Manchester canal tolls, quay charges	15 50	
Cartage and portorage at docks and Warehousing.....	12 97	
Clearing and forwarding, sampling and taring.....	3 81	
Warehouse rent.....	5 66	
Fire insurance, marine	7 51	
Portage at market	11 51	
Printing	6 02	
Brokerage at 5 per cent.....	45 80	
Cable	73	461 24
		\$ 454 42

Messrs. B. W. Potter & Co., writing on the 3rd of November regarding the second "Trader" say :

"The grapes have not realized much, but the apples and pears should satisfy you we think. It is unfortunate we had nothing from you by the 'Manchester City' in this week, as prices have been still better and all our friends were anxious for further supplies. The quantity of French pears on the market was much smaller during the week and this helped prices. You will find it to the advantage of all concerned to send regular shipments and not one occasionally.

"The Duchess pears have been quite the most successful of any variety. They have carried exceedingly well and stood up afterwards. This is a great advantage and gives buyers confidence to take a quantity. We do not know whether the Bartletts could be picked at the right moment to keep better, but it certainly is their weak point. You will notice the number spoiled this time.

"Would it be possible to send a consignment of fruit in cases to land here about ten days before Xmas? We are confident good prices would be realized. The cases would be handy for presents."

A shipment of pears and apples made on Manchester City by some of our neighbors was sold in three different markets. Those sold in London brought higher prices than those sold in Manchester. The highest price per bushel box of apples got in Manchester was \$1.58 for Spys from A. H. Pettit. The highest in London was \$2.68 for Blenheims, from W. J. Andrews. In Glasgow, Anjou pears from C. P. Carpenter & Sons, brought \$2.44 for half bushel box,

and Kieffer \$1.58. Duchess pears from M. Pettit also brought \$2.44.

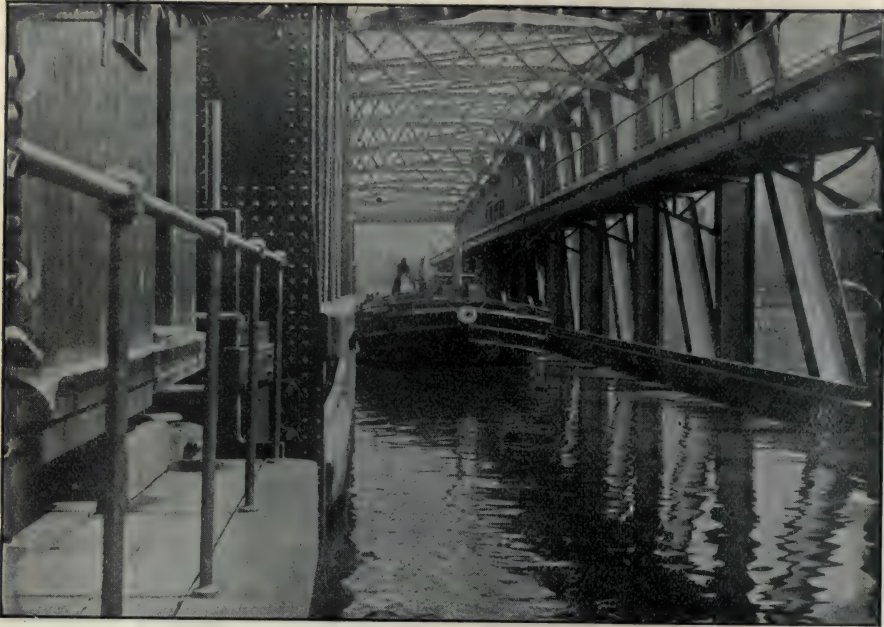
A fourth shipment, the third by the Trader, sailed from Montreal on the 18th of November, made up chiefly of bushel boxes of apples, half bushel boxes pears, 48 lb. crates of Roger's grapes in 4 lb. baskets; 24 lb. cases of Kieffer pears, and half bushel cases of orange quinces. A part of the grapes were packed about the 1st of November, and kept in ordinary storage, counting upon cool weather, but the temperature was higher than usual for the season, and in consequence the grapes first packed showed signs of mould before the 18th, and some had to be withdrawn entirely from shipment. The same difficulty was had with the Kieffer pear, which ripened so fast in November without cold storage at Grimsby that the half had to be sold in home markets, and out of 500 baskets intended for export, only about half were in condition to forward.

At the time of writing the report of this shipment is not yet to hand.

CONCLUSIONS.—On the whole we conclude from this season's experience that, with certain limits of temperature guaranteed to to us on shipboard, as has been arranged for us this season by the Hon. Sydney Fisher, and with Hanrahan's system of circulation of air, we may export pears, summer apples and even peaches in perfect condition, and with perfect confidence. We have already established a fine reputation for our goods in Manchester, and if this trade can be pushed forward, there is no question that a new day of better things will dawn for Canadian fruit growers.

Our pears are especially admired and appreciated in England, and we may send forward as many as we like if only properly graded and packed. In evidence of this we quote the following from the "Fruit Grower," of London, England, under date October 4th :

"The samples of pears are unusually large and



VESSEL IN AQUEDUCT OVER THE MANCHESTER SHIP CANAL.

FIG. 1957.

fine. The Williams were grand, and it is clear that no competitor on the market from any outside centre can touch them, for as far as quality, size, flavor and color are concerned they are as perfect as a market Williams can be. The other varieties are also of prime quality. It is thus evident that at last the whole export business has been put upon a proper basis, and that Canadian growers and shippers may rest satisfied with the situation as far as methods of transit are concerned."

And again under date of October 11th :

"It is worth noting that best pears have met a fairly good sale through the week and that the supplies have, thanks to the Canadian shippers, been well up to the mark. The Canadian Williams has attracted a good deal of attention in fruit trade circles. Some large specimens have been put on sale, and as the skins of the fruit were clean and delicate, they met a good reception from buyers in the best fruit shops. We learn that a large quantity of pears are to come across, and that in future years the competition in this branch of trade will be very keen. As a matter of fact the pear trade from October till February is excellent, and good samples put upon our markets during the former months can always be depended upon to secure good prices. The one difficulty as far as Canada is concerned has been overcome. Now they are in a position to put their fruit on our markets in perfect condition, and this is a consideration. So long as the fruit sent is large, of good quality and well graded, it

will pay. It has taken the colony time to master the initial difficulties that beset its path at the start, and it is to be hoped now that it will be able to develop a profitable business with this country."

The following extract is from the "Liverpool Mercury" in October :

"Since mechanical refrigeration was inaugurated on steamers running from Canada to British ports in 1897, many improvements have been made in the grading and packing of fruit, until to-day Canadian-grown peaches, pears and apples can be landed in this country and placed on the market in as perfect condition as if picked a day or two ago instead of a month. This has been illustrated by a consignment recently received in Manchester. The Hon John Dryden, Minister of Agriculture for the Province of Ontario, is co-operating with the growers in the matter, and the Canadian Government are now providing for each chamber fitted for the carriage of fruit a thermograph, or self-registering thermometer, which shows whether the fruit has been carried under proper conditions or not."

Now since the Province of Ontario is more deeply interested than any other Province in the development of this fruit export trade, we think our Association should urge upon our Provincial Government the great importance of vigorously prosecuting this en-

terprise until we see public confidence in it established ; until the days of glutted home markets for fruit are passed away forever, at least for fruit of the higher grades, and until the prices of these goods at home are established by their advanced export value, instead of their being sacrificed as now on overloaded home markets. Why should our pears, that are worth from 75c. a basket for export, and our peaches that are worth from \$1.00 to \$1.50 for that purpose, be sold here at 15 to 30 cents? Why, with such possibilities just within our reach should the

thing be dropped, and our growers left to struggle along in an industry that, though once profitable, is now becoming unprofitable?

The Dominion Government has kindly opened the door for us, and the Provincial Government has begun to take an interest in us ; let us now strongly petition our own province to help us still further to pursue this enterprise, and not to drop it until it is as firmly established as any of our other industries.



AQUEDUCT BEING SWUNG ASIDE TO ALLOW VESSEL TO PASS ON SHIP CANAL BENEATH

FIG. 1958.



FIG. 1959.

EXPERIMENTAL FARM NOTES.—XI.

A MONTH ago it was thought that our fine, mild weather must be nearly over, as there had been a continuous spell of it since early in September, but it was not till October 17th that a severe enough frost occurred to kill such tender plants as canna's and dahlias, the temperature that day being 27.8° Fahr. After that time there was much fine weather and no really hard frosts occurred until Nov. 13th, when the temperature fell to 15.5° Fahr. On Nov. 14th four inches of snow fell, and at this date, Nov. 19th, it looks as if winter had set in, although there is little frost in the ground yet.

As the grapes were not injured by frost until October 17th, a much larger number of varieties ripened than was anticipated, 81 in all which fully matured. The following mentioned in about the average order of their time of ripening are some of the va-

rieties that may almost always be counted on to ripen here: Champion, Moore's Early, Peabody, Moyer, Canada, Merrimac, Wilder, Brant, Rogers 17, Delaware, Brighton, Moore's Diamond, Worden, Lindley and Vergennes, while not always certain to ripen thoroughly are such good keepers that they should be planted where more than the earliest kinds succeed. Champion is of such inferior quality that it is not recommended where any of the others mentioned will ripen.

The work of renewing the vines and old arms which was begun two years ago was continued this year. In this part of Ontario, where the vines have to be covered every winter, it is not a good plan to let the arms get large and stiff, as they are much more difficult to bend, and more soil is required to cover them. Furthermore, the buds are not as reliable on the old arms, and there

are often misses. Good crops may be relied on from young wood if it grows from old roots. It is not, however, a wise practice with the amateur, if the two arm or horizontal system is adopted, to renew the vines every year, as, if they are broken when being bent to be covered, the crop will be lost. As long as the arms are pliable and the buds all show vitality they may be left.

Now that the flowers have gone, the leaves fallen, and the deciduous trees and shrubs become bare, there is nothing which brightens up a landscape so much as something with red or scarlet fruit. The following hardy trees and shrubs are among the best for this purpose, as the fruit is very attractive :

HIGH-BUSH CRANBERRY (*Viburnum Opulus*). This is a well-known native shrub from six to nine feet in height, which is attractive almost the whole year round. It is a free bloomer, and the flowers, while not showy individually, when massed together on the bush produce a fine effect; the leaves also, which are a bright green color and of good form, render it a pleasing object throughout the summer. But it is in the autumn and nearly all through the winter when this shrub shows its most desirable characteristics. Being a profuse bloomer, it is a heavy fruiter, and the clusters of scarlet berries hang in great masses from the branches. The fruit keeps its color well, which makes it particularly useful where pleasing effects in winter are desired.

CLIMBING BITTERSWEET, (*Celastrus scandens*) : There are few hardy climbers which have as many good points as this one. It is a rapid grower, with smooth, green leaves. It is not subject to disease, nor is it affected by insects. After the first severe frost in autumn the orange colored berries burst open and the inner part, which is brighter in color, revealed. In addition to its value as a climber, it may be kept in a

bush-like form on the grounds by pruning back the young growth, and a plant of this kind is very attractive in winter when covered with fruit. In procuring this shrub, care should be taken to get plants with both male and female flowers, as the flowers on some are all males and no fruit is formed. There is a Japanese variety, *Celastrus articulatus*, which has smaller berries, in which there is more contrast in color. It is also very desirable.

THUNBERG'S BARBERRY (*Berberis Thunbergi*) : The barberries are all highly ornamental shrubs, both on account of their attractive foliage and highly colored fruit. Thunberg's Barberry is, however, one of the best. It is a highly ornamental shrub at almost any time of the year. The small leaves are bright-green, and as the shrub is of compact, neat habit, not growing more than four feet in height, they are shown to advantage. The small yellow, flowers, while not showy, are pretty and are a pleasing contrast to the leaves. While an extremely desirable shrub for ornamental purposes in the summer, it is very attractive in winter, as the fruit is bright scarlet and quite abundant.

EUROPEAN MOUNTAIN ASH, (*Pyrus Aucuparia*) : The Mountain Ash is a well known tree, which need only be referred to as among the best of the trees whose bright fruit remains during most of the winter. If the Mountain Ash is grown as a lawn tree, the branches should start from near the ground. A tree of this kind becomes very shapely and is always attractive. The Mountain Ash is much troubled with borers, but these may be prevented by washing the trees with soft soap reduced to the consistency of thick paint by adding a saturated solution of washing soda, or by destroying the borers when their work is noticed.

There are many other shrubs which are quite ornamental in winter, and which brighten up the grounds very much. Among these may be mentioned the Chinese Matri-

mony vine (*Lycium chinense*), with its large fruited variety, (*macrocarpum*), and the various species of *Euonymus*, which are all good, the leaves of many of which becoming highly colored in autumn. There are several species of *Cotoneaster*, the fruit of which is very ornamental in late autumn and early in winter, and which should not be omitted. Several species of roses also fruit heavily, and are quite attractive for some time. Among climbers, some of the honeysuckles are worthy of a place, as besides, being attractive in summer about the

verandah or porch, they furnish an abundance of fruit, which is quite conspicuous in winter.

By a little judicious selection of trees and shrubs it would be no difficult matter to obtain those which would be ornamental in summer, and which would help to enliven an otherwise rather dull landscape in winter.

W. T. MACOUN,
Horticulturist.

Cent. Exp. Farm, Ottawa.

COLD STORAGE EXPERIMENTS.

COLD STORAGE EXPERIMENTS at the Kansas station have resulted in the following table showing the temperature for preserving the different products, as well as the packages in which they should be stored, and the time they may be expected to keep, as follows :

TEMPERATURE FOR PRESERVING DIFFERENT PRODUCTS.

Product.	Temperature.	Package.	Time.
Apples summer	38 to 42 °F.....	Barrels or boxes.....	2 to 4 months.
Apples, winter.....	32 to 35	" "	5 to 8 months.
Pears.....	33 to 38	" "	2 to 3 months.
Peaches.....	36 to 38	Crates	2 to 4 weeks.
Grapes.....	38 to 40	In sawdust in boxes....	6 to 8 weeks.
Plums.....	38 to 40	Crates	2 to 4 weeks.
Berries and cherries.....	40.....	Quart boxes.....	1 to 3 weeks.
Bananas.....	40.....	Crates	8 to 12 weeks.
Lemons, oranges.....	40.....	"	8 to 12 weeks.
Figs, raisins.....	40.....	Boxes	8 to 12 weeks.
Watermelons.....	40.....	"	3 to 6 weeks.
Muskmelons.....	40.....	"	2 to 3 weeks.
Tomatoes	38 to 42	Crates	2 to 4 weeks.
Cucumbers.....	38 to 40	"	2 to 3 weeks.
Celery.....	35.....	Boxes	"
Cranberries.....	34 to 38	Barrels.....	"
Onions.....	34 to 40	"	"
Potatoes.....	36 to 40	"	"
Asparagus, cabbage.....	34.....	Boxes.....	"

KEEPING QUALITIES OF APPLES.

IT is a matter of common knowledge that varieties of apples, as of other fruits, differ greatly in their keeping qualities. Not all varieties are adapted to the same conditions. In general a juicy fruit or one that matures earlier in the season, does not keep as well as a drier, firmer fruit, or one that matures later.

The Canada Experimental Farms made a test of the relative keeping quality of 23 varieties of apples as stored in a cellar. The temperature ranged from 35° to 40° F. for three months, with the exception of one very cold snap when it fell to 26°. The apples were undoubtedly frozen, but were in the dark and thawed out gradually. April 15, the thermometer rose to 45° F., and in May a little higher. The fruit was not ripe. It was examined May 28, with the following results :

Relative keeping qualities of twenty-three varieties of apples.

Variety.	Sound.	Partly de- cayed.	Rotten.
	Per ct.	Per ct.	Per ct.
Ben Davis	100		
Newell	93	7	
Wagener	88		12
Rawles Genet.....	82	6	12
Winesap	82	4	14
Walbridge	75	13	13
Green Sweet.....	72	11	16
Crimean.....	62	15	23
Lawver	49	11	40
Bombarger.....	44	36	20
Duke of Connaught.....	42	16	42
Hardy.....	34	33	33
Swayzie Pomme Grise.....	31	6	33
Pewaukee.....	20	47	33
Watterson No. 3.....	20	40	40
Salome.....	20	40	40
Fameuse.....	12	18	70
Quaker Beauty.....	4		96
Hardisty		25	75
Haas			100
Gideon.....			100
McIntosh.....			100
Anisovka.....			100

Grapes in sawdust gave better results than those in baskets or open trays.

The berries seemed to hold to the stem better than in either of the other cases. They were also slower to show mildew, owing to the fact that the sawdust absorbed

the moisture that evaporated from the grapes and kept them dry. A difficulty with sawdust packing is that it adheres to the fruit and stem so that in shaking it off the berries are detached. Cut cork was suggested as better packing material than sawdust. Next after packing in sawdust the method of storing in trays gave best results, as it kept the fruit drier than the baskets.

Dryness is essential to the successful preservation of grapes. Moisture causes the growth of mold, which at once ruins the fruit. With the present moist storage rooms some good absorbent such as sawdust must protect the fruit. Better success with grapes would be attained in a room cooled by dry, cold air currents than by the present systems of refrigeration. Such storage rooms are already being planned in some warehouses. * * *

Grapes held up in good condition from six to eight weeks. The results of other seasons agree in fixing this as the limit for grapes grown in our section. The length of time varies considerably with the different varieties. Delaware, Agawam, Brighton, Duchess, Centennial, Concord, Worden and Hays, ranking in the order named, have kept the best. It is noticeable that the red grapes head the list, the first three being red. The fourth and fifth of the list are white, while the black grapes represented by Concord and Worden rank in sixth and seventh places. The varieties that kept best are those that rank as early grapes. However, no extremely late varieties were tried. Had they been tried the results might be different. The climate in which the grapes grow modifies their keeping qualities. A grape that matures slowly in a climate of moderately cool, regular temperature will keep longer than one whose ripening it hastened by excessive heat.

Plums differ much in their behavior in cold storage. Robinson and Weaver, very juicy varieties, were kept from three to four weeks. With such varieties decay proceeds very rapidly when once it has begun. Less watery sorts, as Golden Beauty and Moreman, were kept in the station cooling room, which had an irregular temperature averaging about 50° F. for more than a month.

Weizerka, a meaty, prune-like variety, kept for a still longer time.

Tomatoes, picked when just beginning to redden, wrapped separately in tissue paper and placed in a crate packed on the bottom and top with excelsior, were kept about two months. Green tomatoes may be held in storage for several months, but when removed instead of ripening, they simply rot.

Tests were made with cucumbers, but, contrary to expectation, they did not keep well. "With our present knowledge," says the Kansas Station, "we can not regard the cucumber as a success in cold storage."

In recent experiments in England, according to the Journal of the Board of Agriculture, the storage chambers were fitted with tiers of galvanized wire shelves around the sides and the fruit was placed on cotton wool.

It was found that strawberries could be kept for at least three weeks in a temperature of 30°, but it was necessary to sur-

round the fruit with cotton wool, or, in the case of fruit in sieves, to place a pad of that material over the top. When this precaution was not taken, the fruit, though sound, became dull and lost the fresh inviting appearance which is so important when it is offered for sale. Black currants kept well for ten days, after which they began to shrivel, but plumped and freshened on exposure to the air so as to be marketable. This was especially the case with black currants that had been stored in market sieves covered with a wad of cotton wool. After a fortnight's storage, the temperature was raised from 30° to 32° F., and this seemed to give the best results. The experiments with red currants were an unqualified success, the fruit remaining perfectly sound for six weeks, and maintaining its freshness when exposed to a normal temperature for sixteen hours. Cherries covered with wool kept for a month at a temperature of 30°, and at 36° were not only sound, sweet and juicy, but fresh and clear. After the fourth week the fruit began to wrinkle. * * *

Green gages were kept in excellent condition for ten weeks and Victoria plums kept for nine weeks, but the cooking varieties of plums, with that exception, did not lend themselves satisfactory to cold storage.—*Kansas Expt. Sta. Bul.*

PACKING APPLES FOR EXPORT.

SO much has been said and written about the importance of packing apples carefully and honestly that it might seem almost like a useless repetition to refer to the subject again. Yet the conditions this year are somewhat unusual and it is therefore worth while to study them with unusual care. The facts are about as follows—The world's crop of apples is an exceptionally large one, perhaps the largest in the history of the industry,

and this in spite of the large quantities that were blown from the trees during the recent high winds. On the other hand the crop of Nova Scotia is probably *not* so large as last year and certainly not of as high quality. The black spot has been unusually prevalent the past season and apples are spotted and cracked as they have not been for some years, and everyone who has ever had the least experience in packing such fruit knows that it is well nigh impossible, even with the best

of intentions, to exclude all unsound fruit. As a result of all this our Nova Scotian growers will have more rivals against whom they must compete in the English markets, yet their goods which they offer will not be up to the usual standard in quality.

In view of this fact it behooves every orchardist to sort and pack his apples with unusual care and to send forward only the best. It is quite probable that he will receive as much money for his crop if he ships only those that are sound and unblemished, packing them as No. 1s and 2s (it is a mistake to send unsound fruit or "drops" as No. 2s or or any other number), and disposes of the less desirable grades in local markets and at canning establishments. And it is *undoubtedly* true that by so doing the reputation of Nova Scotia fruit will be kept at its present high standard, and the future prospects of the trade thereby improved. Indeed some growers, whose opinion is entitled to great respect, have gone so far as to say that it would in the end be better for the apple growers if the present crop could be destroyed altogether. This may be taking a somewhat pessimistic view of the situation, yet it undoubtedly rests with the growers themselves to determine how much ground there is for this opinion.

Another feature of the question is worthy of careful thought. The large crop and comparatively low price of apples will mean that they will find their way into parts of England and other European countries which have not heretofore received any Canadian fruit. If these trial shipments shall open in attractive condition there will be a demand for more, and this demand will continue another season even though prices may be somewhat higher. But if these first shipments of our fruit shall prove poor, dishonestly packed and generally unsatisfactory, the result will be that we shall have no further demand from that quarter either this year or future years, at least till this first impression has been removed.

What is to be the result of this year's sales? Fair prices for our fruit, an enlarging of our markets, and bright prospects for the future? Or a demoralized market this year and a prejudice against our fruit which it will take years to overcome? It is the fruit growers themselves who must answer this question!

F. C. SEARS,

School of Horticulture.

Wolfville, Nova Scotia.

APPLE BUTTER.—The following receipt for making apple butter is given by the Rural New Yorker:

Apple butter should be made from new cider, fresh from the press, and not yet fermented. Fill a porcelain-lined kettle with cider and boil until reduced one-half. Then boil another kettle full in the same way, and so continue until you have sufficient quantity. To every four gallons of boiled cider allow a half-bushel of nice juicy apples, pared, cored and quartered. The cider should be boiled the day before you make the apple butter. Fill a very large kettle

with the boiled cider and add as many apples as can be kept moist. Stir frequently, and when the apples are soft beat with a wooden stick until they are reduced to a pulp. Cook and stir continuously until the consistency is that of soft marmalade and the color is a very dark brown. Have boiled cider at hand in case it becomes too thick, and apples if too thin. Twenty minutes before you take it from the fire add ground cinnamon and nutmeg to taste. It requires no sugar. When cold, put into stone jars and cover closely.

LOYALTY COMMEMORATED.



FIG. 1960. MEMORIAL COLUMN.

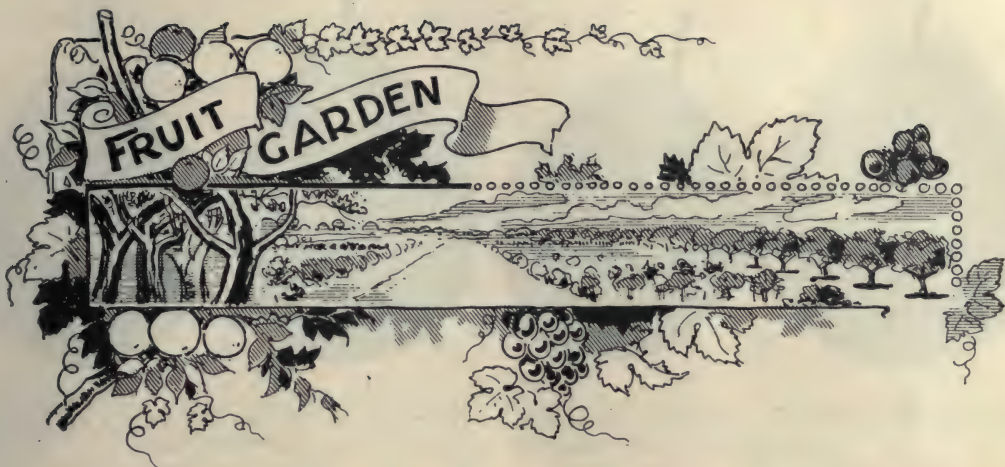
THE loyalty of the Canadian soldiers to the Empire has been proved on many a battlefield in South Africa, but the Canadians who have staid at home have been no less interested and sympathetic and loyal. These sentiments have been shown in a hundred different ways, one of which is shown by the accompanying illustration. It is a "broken column" composed of living plants erected in the Public Gardens at Halifax, Nova Scotia, to commemorate the brave defence of Kimberly and in honor of the first Canadian to sacrifice his life there.

The circular bed on which the column stands and the base of the column are composed principally of *Ledum glaucum* and *echeveria*, with a single row of golden *crassula* near the outer edge of the bed and

"H Co." in the same plants, the "H" being on one side of the column and the "Co." on the other. At the back of the column in the circular bed is the word "Africa," and in front "Heroes." The upper part of the column and the conger section in the centre are each composed of *alterianthera*, while the division in which the word "Wood" appears is made up of *Cerastian tomentosa*, and the lower division which includes the word "Kimberly," consists of a species of *herniaria*. Altogether it is a most interesting and artistic bit of work and one which is a credit to Mr. Power, the Superintendent of the Gardens, who was instrumental in having it erected.

J. C. SEARS.

School of Horticulture,
Wolfville, Nova Scotia.



THE EFFECT OF POLLINATION.

OF late much has been said and written in regard to the effects of different pollen regulating the size of fruits. In several back numbers of the *Canadian Horticulturist*, this subject has been fully treated, and again in an excellent Pamphlet, No. 181, by S. W. Fletcher of the Cornell University Agricultural Experiment Station, in which the author draws attention to the following facts proven by experiment in regard to pears. Seckel pollinated with Keiffer pears are much improved, whilst Lawrence pollen has not much effect. Clapp's Favorite, when pollinated with Keiffer, was much larger than when pollinated with Lawrence. Louise Bonne and Howell, when pollinated with Clapp's were twice the size of those pollinated by Bartlett, and turning to stone fruit, Coe's Golden, when crossed with French prune was much improved, and Green Gage crossed with Italian prune was improved, and Satsuma crossed with Abundance was also improved.

But to come to results obtained near home, the writer, in 1894 planted a pear orchard of 1200 trees, and, amongst other varieties planted, put Duchess and

Keiffer in each alternate row; the fruit last year was not very plentiful, but the effect about to be stated was noticeable. This year the trees were well loaded, being clean and smooth, and there the effect of beneficial pollination was very much shown. In the illustrations, Nos. 1, 2, 3 and 4, No. 1 shows a Keiffer pear pollinated with Duchess, No. 2 a Duchess pollinated with Keiffer, Nos. 3 and 4 show an average sized Keiffer and Duchess respectively.

Now here in picture No. 1 we see the good effect of Duchess pollen in the Keiffer pear. Observe the characteristic enlargement of the blossom end, common in the Duchess; the skin, too, was of the rough speckled Duchess type, whilst the flavor was much improved. Placed side by side with a Duchess, not one prominent fruit-grower could tell the difference when shown both.

No. 2 shows a Duchess pollinated by Keiffer pollen; here it makes the Duchess smaller; note the tendency to grow smaller at each end, and especially the familiar ring or bulge half way down the pear, so common in the Keiffer pear. The flesh, too, was coarse and more gritty; it lacked, too,



No. 1

No. 2

No. 3

No. 4

FIG. 1961. POLLINATION. (1) KEIFFER POLLINIZED BY DUCHESS. (2) DUCHESS POLLINIZED BY KEIFFER. (3) AVERAGE FORM OF KEIFFER. (4) AVERAGE FORM OF DUCHESS.

that russet yellow color. Both specimens were very carefully taken off the tree, wrapped and labeled by the writer, so no confusion could arise to doubt the effect of the pollens.

Now compare Nos. 1 and 2 with 3 and 4,

fair samples of a Keiffer and Duchess, and the effect is clearly shown. The effect was noticeable throughout the orchard, and what can we sum up from this? In planting Keiffer and Duchess near each other we evidently impair the quality of the Duchess



No. 1. KEIFFER DUCHESS.

No. 2. KEIFFER.

FIG. 1962. KEIFFER DUCHESS AND KEIFFER COMPARED.

unless it has a better keeping habit, whilst the Keiffer is very much improved in quality, color, and most especially in style. Certainly the Duchess was much cleaner and smoother, with a tougher skin. Following along these lines we can so plant our orchards so as to materially alter the form and texture of our fruits, and if so we are

only beginning a process the result and end of which is hard to see. Surely it is an error the old notion that the effect of cross pollination was only shown in our fruit grown from the seedlings of the parent fruit thus pollinated and not in the fruit itself.

Winona.

N. KEEP.

A MODEL ACRE OF STRAWBERRIES.

I SEND you a statement of my method of growing fancy berries for market. The varieties used are Marshall, Wm. Belt and Brandywine, principally Marshall. The plot herewith described contains two acres.

The land of clay-sand loam containing more or less stone, in good condition, was plowed and thoroughly fitted, finished up by rolling.

It was then marked very accurately 30x36 inches by markers made of $\frac{3}{8}$ x10 inch strips with runners on the under side and a pair of handles like thills. A line was stretched along one side and across one end as a guide for the marker, after that one runner of the marker was run in the last mark made. With a little care almost perfect marking is the result.

The plants, 5800 per acre, were set with spades, the spademan carrying the plants, straightened and very wet in a basket strapped upon his back, the setter, generally a boy, taking a few plants from the basket at a time in his hand while the spademan with a moveable wooden sole or sandal upon his shoes thrusts the spade well down into the soil, then forward when the setter with a quick snapping movement snaps the plant behind the spade, being sure to have the roots straight down and well spread. The spademan then removes the spade in such a manner that the earth falls back upon the

roots, he stepping close beside the plant thus firming it.

When setting was finished, the Breed Horse Weeder was used, and continued until the crowns became so large that it began to break them off, when the 13 tooth Iron Age cultivator going both ways was substituted." By the frequent use of the above tools and a very little hand hoeing the field was kept free from weeds and showed great vigor.

Up to August 1st all runners were kept off, then are allowed to make plants for about ten days when they were bedded in as follows: two runners or plants from each side of the old plant were stretched out in the 36 inch way covered in or fastened down with earth or stones, all other runners pinched off. When finished the beds consisted of rows $2\frac{1}{2}$ feet apart in the rows, the hills of old plants 36 inches apart with two clumps of two new plants each, twelve inches from each other and also twelve inches from parent hill or plant. Afterward all runners were kept off. The final result is the bed now contains per acre 5800 hills of from 4 to 10 crowns each and 23000 immensely strong new plants capable of producing strictly fancy fruit in large quantities.

The fertilizer applications were as follows within ten days after planting, 5000 pounds high grade compost per acre which was at the rate of an ordinary handful about each

plant. Just previous to bedding 250 pounds fine ground bone and 100 pounds muriate potash was spread where the plants were to be bedded and thoroughly cultivated in. A third application of 400 pounds ground bone and 250 pounds sulphate of potash was made broadcast between the rows in October.

The field is now covered with straw at the rate of three tons per acre spread between the rows, care being taken to keep it off the plants. We believe in early mulching.

As has been the custom for many years, the fruit will be carefully picked stems on, avoiding all bruising, careless handling, etc., thoroughly sorted by the pickers, who place all small, mis-shapen, over or under ripe or otherwise objectional fruit in separate baskets to be sold as culls to peddlers for local consumption, while the perfect fruit packed in new baskets in either new or

well painted crates will be shipped to various markets or sold to buyers here as circumstances shall dictate.

Herewith I append cost of growing block of two acres described :

Plowing and fitting.....	\$18 00
Plants.....	23 20
Setting.....	6 00
Filling in.....	1 00
Fertilizer.....	18 00
Applying fertilizer.....	1 00
Fertilizer (500 ground bone, 200 muriate potash).....	11 00
Application.....	1 60
Cultivating and hoeing.....	28 20
Bedding runners.....	18 20
Cutting runners.....	20 60
Fertilizer (800 ground bone, 500 sulph. potash).....	23 00
Mixing and applying.....	2 00
Straw, 6 tons (@ \$5.00).....	30 00
Spreading.....	5 00

Total\$206 50

—*The Strawberry Culturist.*

FOOD VALUE OF FRUIT.

IN recent years the growing of fruits has assumed great commercial importance in many regions of the United States, especially in the South and on the Pacific coast. The amount of fruit consumed in the average household has undoubtedly increased with the greater production and facilities for shipping and marketing.

Many stations have reported analyses of fruits and made extended studies of the different methods of growing fruit trees, their soil requirements, enemies, etc.

The stone fruits constitute an important group, and have been studied for a number of years by the California and Oregon stations. Fresh peaches, apricots, cherries, prunes and plums are general favorites, while enormous quantities of these fruits are canned, dried or preserved in some way. It is interesting to compare the composition of

these fruits, fresh and dried, with each other and with some of the staple articles of diet.

It must not be forgotten, however, that fruits are valuable for other reasons than the nutrients which they furnish. They contain acids and other bodies which are believed by physiologists to have a beneficial effect on the system and, doubtless, very often stimulate the appetite for other food. They are also useful in counteracting a tendency to constipation. Another point—and one entirely apart from food value—should not be overlooked. That is, fruits add very materially to the attractiveness of the diet. It is not easy to estimate their value from this standpoint, since often the appearance of food has a value which cannot be measured in dollars and cents.—*The Farmer.*

THE WILLETT PEACH.

WALLACE P. WILLETT, writing to the Country Gentleman, notes the fact that the Willett Peach is one of the seven varieties that did well in a trial of 225 varieties at the Michigan Experiment Station. He says that the original seedling tree was grown in the yard of his city home, 110 W. 48th St., New York city, from a peach stone brought from South America. He exhibited specimens at the American Institute fair in 1874 and received a diploma. He writes :

A nurseryman who saw the peaches there, begged of me some cuttings the following year, which I sent him, and from those cuttings he propagated the Willett Peach. I also sent him fruit from the original tree, which fruit he placed before the Pomological Society of the state of New York, who named it the "Willett Seedling," and pronounced it "the finest late peach grown," as he wrote me. I have never taken the trouble to look up that record, and don't know if it exists to-day.

I have never been without the Willett peach, and never failed in any year to have specimens measuring at least 9 inches in circumference and weighing at least 9 ounces each, always having received my fresh supply from said nurseryman until his death.

His successors have not been as careful of the propagation, and quite shamed me with my friends, among whom I have been accustomed to distribute trees, by sending me for the Willett an entirely different and inferior peach ; in fact a white clingstone, which decayed on the trees before ripening. Fortunately, I had several true Willets on my place, and now produce my own trees, true to name. I find the Willett is entered in my catalogues South and North, and now West.

Sitting on my piazza two autumns ago, a tree agent came along soliciting orders. Looking over his catalogue, I was confronted with a fine picture of the "Willett Seedling" peach, with letter-press copy of myself as its producer, with all particulars. I took the gentleman to my peach garden, and showed him the perfected originals of his drawings.

Now, after 25 years' test, if the testimony of those who see and taste and raise the Willett peach from trees that I have distributed is worth anything, it is not too much to say, as said the Pomological Society, the first years of its introduction, "The Willett Seedling is the finest late peach grown," and I may perhaps congratulate myself on having given to the world a peach of beauty and a joy forever.

THE CHAIRS PEACH.

THE wonderful peach crop of this year is teaching us some useful lessons about varieties. Some of the old ones hold their own remarkably well, and others are being outclassed by better ones of the same character. The demand for yellow peaches seems to be on the increase, and whatever color is fashionable is the one to grow. The Crawfords, Foster, Reeves,

Smock and lately Elberta have largely been the cause of this popular notion, because they are all peaches of good quality, except it be Smock, which has been mainly popular with the canners. Many varieties have been brought forward of the season and character of Late Crawford, but none that seems to be superior in all respects except Chairs. Having just made a trip of investigation through

the peach orchards of Delaware, which are almost universally loaded with fruit, it has been a rare opportunity to see what the varieties have done, and there seems to be no



FIG. 1963. THE CHAIRS PEACH.

variety of that season that equals it, although there are plenty of competitors. It is just like a very large Late Crawford, but excels it in size and seems to be less subject to rot.

It is also a trifle longer in ripening its fruit, which is sometimes very convenient when a large quantity requires marketing. The fruit hangs on remarkably well.

The variety originated on the premises of Franklin Chairs, of Anne Arundel County, Md., about 1880, and has been grown more or less in many sections ever since. At first it was called Chairs Choice, but the name is now cut down to the single word Chairs. Many orchards of it have been in bearing for years past, and thousands of baskets and boxes of the fruit have gone to market and been handled on the reputation of Late Crawford, because the old name would be an advantage in the sale, the dealer and buyer both thinking they had rarely seen such fine Crawfords, when it was really the Chairs. Those who contemplate planting a medium late yellow freestone will do well to plant Chairs, except where varieties of the Crawford type do not succeed. The drawing reproduced in Fig. 1963 was made from a good average specimen from a tree that was well laden, on the farm of Charles Wright, of Seaford, Del.

H. E. VAN DEMAN,
in R. N. Y.

JAPAN PLUMS.—Prof. Waugh, of the Vermont Experimental Station, says: "Undoubtedly the hybrid varieties most widely known are Wickson and Golden (often called Gold); and if we were to add a third to the list, it would certainly be Juicy—all three the productions of one man, and that man Luther Burbank. The two varieties first mentioned have been planted all over the United States, and have been fruited this year in hundreds of orchards. The experience thus gained may be fairly summarized, I think, by saying that while both varieties are beautiful in fruit and possess many desirable

qualities, neither one has shown any mentionable promise of taking rank with our well-known market plums, nor even of becoming a pre-eminently desirable house-use plum in any part of the United States or Canada. Both promise to be grown for years to come, but neither one has yet secured first rank either in the market or the amateur list, and neither seems likely to do so. The experience of a few individuals may not accord with this view; but taking the country as a whole, I am confident this is the result."

FAVORITE APPLES AND PEARS IN ENGLAND.

FOLLOWING its usual system of making a numerical analysis of the exhibits at the great exhibitions, the "Gardeners' Magazine" presents figures relating to the recent great show of hardy fruit in London. There were 2,069 dishes of apples alone in 299 varieties. Of pears there were 1,099 dishes in 122 varieties.

The leading apple in this gigantic display was Cox's Orange, shown 85 times. This apple is pre-eminently the finest flavored winter apple grown in the United Kingdom and is becoming more and more popular. It realizes top prices in the market, and around the holiday season reaches sometimes to fancy figures. Others in order are Ribston, 73; Peasgood's, Nonsuch, 72; Warner King, 71; Worcester Pearmain, 61; Alexander, 47; King of the Pippins, 44; Lane's Prince Albert, 44; Blenheim, 39; Gascoyne Scarlet, 38.

Bismark is thirteenth with 32; Mother, 27; Washington and Wealthy each score 18; Gloria Mundi and Tompkins King, 15

each; Sturmer, 11; Oldenburg, 10; Gravenstein, 7; Nanny and Reinette du Canada, 6; Twenty ounce, 3; Astrachan Red, 2; Baldwin, Beitigheimer Red, Early Harvest, Grime's Golden, Spy, 1 each. It is noticed, too, that several of the Russian type appear at the tail end of the list.

In pears the leader is Pitmaston Duchess, 82; with Doyenne du Comice, Louise Bonne de Jersey, Marie Louise, Souvenir de Congress, Durondeau, Diel, Beurre Superfin, Williams (Bartlett), Boussock, Angouleme and Hardy following in order, the last named having 25 points to count. Conference, 20; Bosc, 17; Nelis, 13; Anjou, 12; Seckel, 10; are other varieties well known here.

One remarkable feature is the comparative importance of the more modern varieties. It is evident that the British fruit grower is not slow to try a novelty and the resulting appearance at such exhibitions may convey a false impression of the actual merits of the variety.—*American Garden.*

FALL WORK FOR SAN JOSE SCALE.

THE rapid and unusual development of the San Jose scale the past hot summer in some sections calls for vigorous work on the part of the fruit grower. The following is recommended by Prof. W. G. Johnson, the Md state entomologist, who has done more work against the scale than probably any other eastern man. All badly infested trees, of whatever variety, should be grubbed out without delay. Pile the brush and wood where the tree stood, but do not burn it until next May or June. This is done to preserve the little parasites that feed upon the scale.

The scale cannot leave a branch or twig to which it is attached, while the parasites escape and fly to other trees. Spray all suspicious trees with a 10 per cent. mixture of kerosene and water before the leaves fall, and while the pest is still active and breeding. The scale will continue to breed until checked by cold weather. Select a calm, sunny day for the spraying if possible.

Late this fall, after the foliage is off, whale oil soap at the rate of 2 lbs in 1 gal. of water can be used on pear and apple trees, but it is not recommended for peach and plum trees. It can be used, however,

to wash the trunk and larger branches of peach and plum, but must not come in contact with the fruit buds, as it will kill them. The main object of fall spraying is to break up the scattering of late broods. This having been accomplished, the spray can be

repeated again next spring, just before the buds swell, with a 20 per cent. mixture of kerosene and water. This stronger mixture must not be applied in the fall, winter or on a misty or damp day.—*American Agriculturist*.

CANADIAN VS. FRENCH PEARS.—A remarkable testimony to the excellence of Canadian Bartlett pears comes from the London (England) Daily Mail :

Many varieties of magnificent pears, 1,000 cases in all, and numerous cases of famous Crawford and Elberta peaches have just been landed and sold at Manchester. The fruit came from London, Ontario, and created quite a stir in trade circles. Many of the pears are quite what are termed giant fruit. In color, flavor and juiciness they are far superior to French pears, and met a ready sale. The fruit was packed in chambers regulated by mechanical refrigerators.

That Canadian pears should surpass the French pears when tested by the educated taste of the fastidious Englishmen is quite worthy of general congratulation among Canadian fruit growers. France is famous for the excellence and variety of her pears, as is shown by the long list of French names of pears, and her exports of this fruit to Great Britain are enormous in quantity. But Ontario bids fair to win her laurels

away from her, and, if we mistake not, her pears will soon be more famous in the great markets of the world than were Californias.

The Bartlett, strange to say, succeeds far better here than in England, the place of its origin. Berkshire is its home. About 1770 it was introduced to the public by a nurseryman in Middlesex, named Williams, and has ever since been known in England by his name. In 1797 Enoch Bartlett, of Boston, introduced it into America, and there his name was substituted for Williams.

This pear has such a tendency to mature quickly and soften, that to land it in a firm condition in the Manchester market a month after it was gathered in our Canadian orchards was indeed a triumph for Mr. Hanrahan's system of ventilated cold storage, which is being adopted for the carrying of our fruits.

AN UNPROFITABLE PEACH CROP is reported from Delaware and Maryland owing to the enormous quantity of small sized fruit on the trees. Growers are bitterly disappointed, because this was the first big crop in four years, and they expected to reap rich returns. Instead of this, their fruit has not been worth picking and thousands of bushels have rotted on the ground. The cause of the small size is due in part to the overloaded state of the trees, and in part to the

very dry summer. They have learned one lesson by a costly experience, that thinning must be done in order to grow profitable grades of peaches. Low grade peaches were not worth over 5 or 10 cents for half bushel baskets, medium grade 15 to 20 cents, while strictly fancy fruit brought from 60 to 90 cents a basket. Where no grading was attempted buyers usually bought the whole at the value of the poorest grade in the package.



TIMELY TOPICS FOR THE AMATEUR.—X.

[We have pleasure in again showing our readers the face of our most valued correspondent on Floriculture, Mr. W. Hunt, of Hamilton, who writes for us so regularly under the *nom de plume* of "Hortus." Long life to one who is making himself so useful to our readers.]



FIG. 1964. WM. HUNT.

DECEMBER, 1900! The present number of the *Horticulturist* completes the last volume for the 19th century. The next issue, January, 1901, will indicate the launching forth into 20th century horticulture!

A glance backwards into the records of horticulture of the fast closing pages of the present century, reveals the fact that great progress has been made during that period in all parts of the civilized world.

Floriculture more especially has become much more popular and universal, particularly during the latter half of the century. The improved social conditions prevailing, and a better and more general system of education than before existed, have favorably influenced the growth of floriculture to a considerable extent. The opening up of new countries to commerce, with increased facilities of communication, have also been the means of adding considerably to the somewhat meagre list of foreign and exotic plants that had been introduced to horticulture prior to the advent of the 19th century.

A glance through the catalogues of our nurserymen and florists of the present day, or a stroll through our principal markets when the flower season is at its height, are convincing proofs of the great advance made in floriculture of recent years.

Plants that are indigenous only to tropical and sub-tropical climates, and that half a century ago were seen only in the gardens of the wealthy are now within the reach of almost every one, at reasonable prices. The

more general dissemination of horticultural literature in the shape of magazines, illustrated catalogues, etc., have also been of great benefit in creating a desire for an improved and more varied selection of plants and flowers.

Very few varieties of plants that even forty years ago were thought to be the acme of perfection can be found under cultivation at the present time. The old fashioned single geraniums of that date, such as Stella, Pink Cristine, Madame Vanchre, or even the first introductions of the double varieties a few years later, such as Madame Lemoine, Gloire d'Nancy and others of a similar type, are entirely superseded by the improved and semi-double varieties of these plants so popular with the flower-loving public of to-day.

The older types of the canna, coleus, fuchsias, etc., of half a century ago cannot be seen in our gardens or greenhouses at the present time. One exception, amongst others, may be noticed in this respect, viz.: that of the *Verschafeltii* variety of coleus that still stands in the front rank as a bedding Coleus, after being under cultivation nearly or quite half a century. A few descendants of the original varieties of Persian lilacs, *Philadelphus* (mock orange), etc., still hold a deservedly popular place amongst the newer species and varieties of these useful plants that have been introduced more recently. Some varieties of the lilac have been cultivated in European gardens for over two centuries.

So far as we are concerned here in Canada, floriculture has made very rapid progress, more especially during the last thirty years. Prior to that time there were very few plants, except a few of the commonest geraniums, fuchsias, pansies, etc., offered for sale in our markets. The growth of floriculture, and the demand for a better and more varied selection of plants and flowers during that time has been very noticeable.

The beautiful specimens of plants such as palms, exotic ferns, begonias and even Orchids, natives of far-away lands, exhibited by amateurs at the numerous floral exhibits held under the auspices of our affiliated horticultural societies, is ample evidence of the growing taste of Canadians for all that is rich and beautiful in the floral world.

There are, however, several methods that would probably assist the more general adoption of floriculture than now exists, one of which is to try and induce our young people, even the school children, to interest themselves more in the culture of plants and flowers. A step in this direction has already been taken in several places, with very favorable results. The executive of the Hamilton Horticultural Society made a commencement in this direction during the past season. About 300 geranium plants were distributed in May to the scholars attending the public and separate schools.

In October an exhibit of the plants was given in the Queen Victoria School, and premiums, consisting of plants, awarded for the best plants grown by scholars individually, as well as similar premiums for the collective exhibits from each school. A great deal of interest was taken by the scholars and their parents in the exhibit, and the directors were well satisfied at this, their first attempt to encourage the love of horticulture amongst the young folks.

Photography might also be made useful as a feature, not only of our public exhibits of plants and flowers, but also at the winter meetings of our societies.

A description of an exhibit of this nature was given in a recent number of the "*Agricultural Economist*," a London, England, publication, edited by E. Owen Greening, Esq., who was the originator of the Society under whose auspices the exhibit was held. The title of the Society is a decidedly appropriate and suggestive one, viz.: the "One and All" Society. The exhibit of photo-

graphs proved almost as interesting to the crowds of sight seers as did the magnificent display of the products of greenhouse, window and garden, many of the exhibits in both classes coming from people living in the centre of the busy, bustling metropolis of London itself.

The use of the camera, more especially for recreative and pleasure purposes, has become so general, that I feel certain the directors of our Societies would receive the

people, is too little thought of in these days of commercial activity, and sometimes undue enterprise.

The coming century will, I trust, see an immense development in the more universal culture of plants and flowers by our people. It is a well recognized fact that where there is a community or nation, where the love of floriculture is general, there you will usually find an intelligent, law-abiding, God-fearing people. I am afraid I have gone somewhat



FIG. 1965. "AN AMATEUR'S GREENHOUSE."

Owned and Photographed by T. Glover, Hamilton.

hearty support of not only members, but of all classes of the community, more particularly that of our young people, if this feature were added to our exhibitions and meetings. Premiums could be given for deserving pictures exhibited, consisting of articles used in photography, or plants or bulbs could be given in the same way as for floral exhibits. The social and even national importance of encouraging these and similar projects, more especially amongst our young

out of the usual beaten track in writing this article, but I hope to be excused for my transgression in this respect, as it is the last opportunity of the nineteenth century. I wish everyone, and especially readers of the *Horticulturist*, a happy Christmas for the closing one of this century, and a glad, prosperous and peaceful New Year as a commencement for the coming 20th century of the Christian era.

Hamilton.

HORTUS.

GREENHOUSE AND WINDOW PLANTS.

ROUTINE work amongst the plants and flowers will be the principal features in connection with horticulturist work from now until the first days of spring, unless exceptionally fine weather should prevail during the coming winter season.



FIG. 1966. SPIRAEA.

Chrysanthemums are a comparative failure in this section this fall, owing to the prevalence of the destructive fungous disease known as "rust." Very few of the fine specimens of these lovely flowers we usually see—that seem sent specially to brighten up windows and conservatories, during the usually dull days of November—can be seen this autumn. In fact their absence this season from windows is very noticeable, as a plant or two of chrysanthemums are generally such prominent features in window

gardening during the autumn season. Plants grown out of doors during summer have suffered most; those grown on benches under glass seem to have almost entirely escaped this comparatively new enemy of the gardener.

The old saying "that no person has as many enemies as a gardener" seems to be as true to-day as it ever was. At any rate, no sooner do our entomologists and scientists diagnose and find a remedy for existing insect pests and diseases that of recent years seem so common to plant life, than some new claimant enters the field and requires attention. This last disease to attack the chrysanthemum is certainly very destructive in its effect on these autumn favorites, and no certain cure seems to be known for it except to destroy the plants entirely. Successful batches of winter flowering bulbs should be brought out from where they were placed to make root and brought on into flower. These must have plenty of water when once growth is started.

Roses should be syringed as often as possible early in the day with tepid water. Syringe and water plants on warm sunny days if possible. Seedling cinerarias, calceolarias and cyclamen will require repotting as soon as the pots they are in are fairly full of root. Spireas must have plenty of water to keep them growing properly.

Plants of hydrangeas, agapanthus, clivias, etc., should be removed to their winter quarters. This class of plants that are dormant or semi-dormant in winter require very little if any water. The extent of the dampness surrounding them, wherever they are stored, must determine whether they require any water or not. If the situation is cool, and not too dry, these plants will be better without any water until spring.

Hybrid perpetual roses grown in pots

should be brought in, pruned back and repotted.

Fuchsias for summer blooming will require very little water. A cool cellar, free from frost, suits the fuchsia very well whilst in a dormant state. Cuttings of geraniums that are rooted should be potted in to rather light sandy soil, in small pots, and remain in these until well established.

Keep the atmosphere of the greenhouse, or any situation where plants are growing, as moist as possible. This will keep down insect pests and less fumigating and syringing will be necessary.

Fuchsias will require plenty of water at the roots now and during the flowering season. A cool, slightly shaded position suits these plants best when in flower.

Keep the temperature of the greenhouse or conservatory about 50° to 55° at night, and 60° to 70° in the daytime. Plants require rest during the night. It is unnatural and hurtful to give them a higher temperature at night than in the day time. This is often done, especially during severe cold weather and on dull days.

Hamilton.

HORTUS.

BULBS FOR SPRING BLOSSOMING.

EVERYONE longs for spring to come when winter is here. The sight of budding trees and bursting flower buds is a glorious change from the barren fields of winter. This is why the earliest flowers of spring give the most pleasure to every one. Aside from the earliest of the wild flowers, none are more valued than Dutch bulbs, and none are more beautiful. Coming into bloom as they do just as lawns and trees are putting on their early green, they are simply enchanting.

October and November are the months for planting bulbs, but those who have not done so before these months expire need not fear to do so later, even should it be in open weather succeeding a freezing time. I have planted them at New Year and have had fine bloom. Indeed there is no reason why one should not, as all that is required is to have them in the ground two or three months before blooming, so that there will be ample time for them to make root. From the early part of January to the beginning of April, which is the time bulbs flower here, there is

ample time for the formation of roots, if but a little aid is given.

This assistance can easily be given by mulching, to keep the frost out. But it should be said first that late planting will be the better if the bulbs are set an inch or two deeper than common, to be out of the reach of frost. Hyacinths, for instance, which usually are set with their tops two inches under ground, should be four inches. After they are planted, cover the beds with leaves, manure, hay or straw. Perhaps the best covering is loose, well-rotted manure, because it need not be removed when winter is over. Forest leaves make a warm, excellent covering, but a few inches in depth, keeping out the severest frost. In this protected way, late ones will do as well as early-planted ones.

The mistake is sometimes made of planting bulbs in sheltered nooks close to a dwelling, where it is too warm for them. Flowers are developed so early that late frosts catch them. Some years ago I set some hyacinths and crocuses close to the wall or

the south side of my dwelling. I rarely get full satisfaction from them. Besides the sun heat, there is a furnace in the cellar, which warms the wall so much that for a foot or so from the wall the soil does not freeze. The result is the flowers usually appear in February or March. Should it be an open spell, all goes well, and even if it freezes at night, I get some satisfaction from them by covering at night, but in later plantings I see to it that the position is not too sheltered.

Hyacinths and tulips are first thought of for the bulb beds. In arranging these, do not forget that the hyacinth flowers first, Tulips come later and last longer; therefore the hyacinth bed can be used sooner in spring for the planting of summer-blooming plants, should it be desired to use it for such a purpose. I have known spring planting delayed considerably because of tulips occupying beds intended for the plants.

For indoor blooming in pots, the treatment of bulbs should be on the same principle as for the outside bulbs. After being potted, if the convenience of a frame is at command, the pots should be plunged, or else covered over with soil or some other material such as moss or leaves, so as to keep the bulbs moist and dark. The damp-

ness and darkness produce a nice growth, which is the foundation of good flowers. Florists, who force these bulbs largely, use spent hops for covering, and place it on thick enough to keep out all light and frost. In this way they are safe outside until such times as they are needed for forcing. When the bulbs have filled the pots with roots and the tops are pushing up above the soil, the plants may be given a place in a window, as the flowering time is close at hand.

On a small scale, where but a dozen or so of pots are used, the cellar will answer the purpose very well. The bulbs in this case should be well below the surface of the soil. Set the pots in a box deep enough to admit of their being covered over several inches with sand or soil, which must be kept damp all the time. As soon as the tops show themselves, the pots can be taken to the light.

Freshly imported bulbs of tulips and hyacinths bloom better than those left in the ground all the time, but crocuses are an exception, as they seem to increase in vigor year by year, old clumps making a grand display in the early days of spring.

JOSEPH MEEHAN,
in Country Gentleman.

HOLLYHOCKS.

THESE handsome perennials will be known to all the older gardening fraternity, but I doubt if the majority of amateurs are acquainted with them. About a quarter of a century ago they were regarded as one of the principal florists' flowers, receiving great attention. The named varieties were legion, and there can be no doubt they were really grand. We possessed some of the finest collections in

the country here in Hertfordshire. Alas! where are they gone? Gone! but I trust not forever. The Hollyhock disease, known as *Puccinia malvacearum*—as ugly a name as the dreadful parasite itself is—appeared in this country in 1873, sweeping away whole collections, and practically clearing the country. Since that period the plants have not been very much cultivated, until the last two or three years, when an enter-

prising florist exhibited some boxes of cut blooms in London. I venture to say they will soon become objects in our gardens again.

There is no denying the fact that Hollyhocks, when planted in a group, form noble objects. The accompanying engraving will give a clear idea of the value of such clumps in the borders of our gardens or on the edges of shrubberies. The bold flower stem frequently grows 6 feet high, clothed nearly to the top with massive flowers, which are very varied in color, comprising pure white, pink, rose, amber, yellow, crimson, maroon, and purple; so there is no lack of variety. I will now add a few words on their future. A good rich soil is essential, which must be well drained, for if stagnant they will perish during the winter. I prefer planting young vigorous plants out of 5 or 6-inch pots early in April, pressing them firmly, and mulching with decayed manure soon after they start growing. I do not like them planted in lines, but in clumps, when they are far more effective. Each plant will require a stout stake as the flower stem advances. It should be placed so that it is hidden by the foliage, and each stem secured to it—not tied too closely, or they will resemble a bundle of faggots, but as naturally as possible. Plants can be obtained from a nurseyman either in named varieties, distinct colors, or mixed seedlings. I prefer those that are kept in distinct colors, for then they may be planted accordingly.

If seed is sown it should be placed in a gentle hotbed in May, and the seedlings pricked off in pans or boxes, afterwards transferring them to 5-inch pots. Many people keep them in the pots till the following spring, but I plant them out in a bed about 1 foot apart, covering them in winter with a little bracken or ashes, and transferring them to their proper stations in the spring. On light soil this plan answers well, but where the soil is heavy I should keep them in the pots.—*Garden Work*



FIG. 1967. A GROUP OF HOLLYHOCKS.

INDOOR WINDOW BOXES.

WINTER flowering plants may be grown better in boxes than in small pots. Window boxes used outside in summer may be brought in the house in winter if the precaution is taken to make them water-tight with zinc or galvanized iron. Leave a hole in the bottom of the lining to draw off the surplus water. The boxes may be placed on brackets or hung with wires screwed into the window frame, or placed on the sill.

Any of the plants commonly grown in the house can be planted in the box. Geraniums of any sort, heliotropes, fuchsias and begonias make a good variety, while a fern or two gives a dainty, tasty effect different from other plants. Or the box may be filled with annuals grown from seed. Petunias, phlox, sweet alyssum, nasturtiums and a sprig of mignonette will give a variety of bloom all winter.

At the ends may be planted morning glories and trained up each side of the window. English ivy is also a good vine to use, but is without flowers. In a cool room carnations, violets and pansies may be grown, while roses could be handled successfully in a kitchen where there were heat and moisture. Tradescantia or Wandering Jew can be planted along the edge to hang over the sides, or the box may be covered with pretty colored paper or drapery.

Shelves fill up a window so much that the men do not like plants in the house. In brick or stone houses with the deep window

casings, an arrangement as shown in the illustration may be adopted. If there is not room in the casing, a series of brackets might be fastened along the side, and the plants receive nearly the full benefit of sun without obstructing the light.

—*American Agriculturist.*

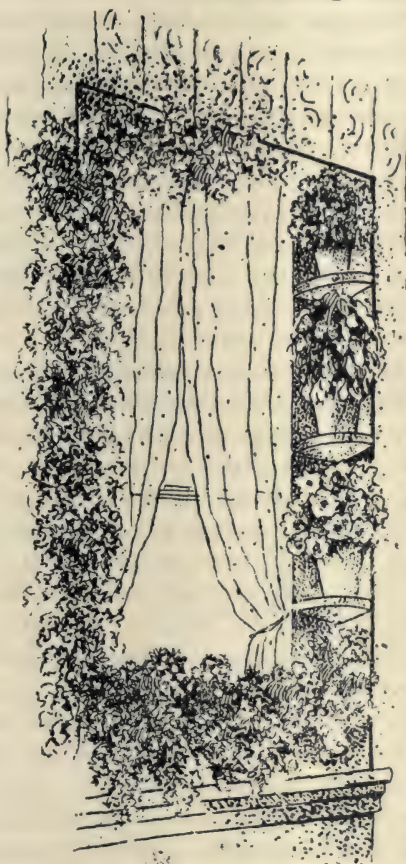


FIG. 1968. AN ATTRACTIVE WINDOW GARDEN.

JAPANESE KOKWA.—Among our handsomest and cleanest foliated climbers are the Japanese Actinidias, of which we have two, more or less common, *A. polygama* and *A. arguta*. In habit of growth and general external appearances when grown, these

vines resemble with some degree of closeness, our native bittersweet. They are exceedingly vigorous, bearing healthy and glossy foliage. These flowers are rather small and somewhat inconspicuous; but to offset this, the plant is almost completely

immune from insect attack and fungous diseases.

A. polygama differs from its near relative in producing about mid-summer many variegated leaves. Usually the upper part of the leaf only is whitened, while the lower part retains its original dark green color. When variegation is abundant the effect is quite striking.

A. arguta has large green elliptical leaves, the flowers are small and greenish white. These climbers have often been rated as half-hardy, but at Abbotsford, P. Que., so far as I know, they have never been injured, and at this time, entirely screen one side of a veranda 30 feet long and 15 feet high.

The Japanese *Kokwa* should be much more

widely grown than it is. The above is a very brief sketch of some of the more interesting of the plant forms to be seen at Gibbland Farm, Abbotsford. On the death of Charles Gibb in 1890, the estate was purchased by Wm. Craig & Son, and named Gibbland Farm, to commemorate the name of one who was loved and respected by his neighbors, and whose labors were for the uplifting of the race. It is most gratifying to know that the owners of Gibbland take not only a deep personal interest in horticultural work in general, but are particularly concerned in preserving specimens of trees and shrubs, valued economically and laden with sentiment warm and rich.

J. CRAIG.

THE SCARLET WINDFLOWER.—*Anemone Fulgens*, the Scarlet Windflower, shown in the engraving, is one of the most brilliant flowers in cultivation. The large blooms, which appear in masses in early spring, are of showy, rich scarlet, with centre of dark stamens, and a bed of the plants in full bloom in the sunshine is dazzling to the eye, surpassing in brilliant effect that of any other hardy perennial.

The Scarlet Windflower does well either in pots in the window or conservatory, or in a shady spot out-doors. It has tuberous roots which spread, and the plants are readily propagated by division. They like a partial shade, and a moist but well-drained soil. They appear well as a border, or as the front row for a bed of shrubbery, and always elicit great admiration. The tubers or plants should be set-out in spring, or at least before autumn, to become established so as to endure the winter. If obtained in autumn they should be kept in pots till spring then bedded out. Avoid wet, undrained soil; it will cause the tubers to rot. In well-drained soil they are perfectly hardy when

once established. The plant is a native of southern Europe, being found in a limited area south of France.—*Park's Floral Mag.*



FIG. 1969. SCARLET WINDFLOWER.

AVENUES.

PROBABLY the most important points in an avenue next to the condition of the trees, are length and breadth. The former determines its ability either to add to the attractions of an approach, when of suitable length, or to convert it into a monotonous and apparently never-ending drive when too long. Its breadth, again, may almost be said to determine its existence as an avenue at all, for we have all of us seen the distance between the two rows of trees so great, as to entirely destroy the effect they were meant to produce, and while retaining its formality, destroying the grandeur with which the height of the trees invests it, and which relatively decreases the further the latter recede from the observer's eye.

As far as its length is concerned, this will depend to some extent on the distance between the two points it is supposed to connect. But, considered as a feature in itself, we think that half-a-mile is long enough for any avenue, if we wish to avoid making the journey along it tedious and tiresome. As already pointed out, after once an avenue has been entered, the view presented to the eye remains much about the same, and it is only when one or other of the ends is approached, that the scene changes to any great extent. When the line runs through an extensive park, which can be seen between or beneath the trees of the avenue, a change of scene is afforded on either side; but the main or front view remains the same, and after a few minutes' ride or walk, the eye becomes satiated with its familiarity, and gradually becomes bored with what at first sight may have pleased. As a long avenue familiar to many, the Long Walk in Windsor Park may be instanced. The size of its trees, and the historic castle at one end, and the colossal statue at the other,

render it an imposing and striking feature of the royal domain; but to tramp along its whole length merely for pleasure is a feat few would care to repeat who are able to appreciate natural scenery.

Had the hill, with its Copper Horse, been as near again to the Castle, this avenue, in my opinion, would have been a much grander sight than it is at present. This may, perhaps, be a matter of opinion, but in a world where size is only relative, it must be allowed that a disproportionate length only tends to dwarf the accompanying height and breadth of any object, and proportion is an essential feature in matters connected with taste.

The most attractive and successful avenues are frequently those of only a few hundred yards in length, such as may be found connecting some old Elizabethan manor-house standing in a few acres of ground, with the adjoining village or public road. In such a position, it invests the approach to the house with a dignity it would not otherwise possess, and the house itself with additional importance by hiding from view out-buildings, and boundary-fences, which would reveal the actual extent of the property. Usually planted with Elms or Limes, these avenues in many instances still remain entire and in good health, although the houses to which they owe their origin have either disappeared, or have been turned into farm-houses, or even more humble uses.

In the same way, where the mansion stands close to the entrance gates, no better connection between the two can be found than a short avenue of this kind. The distance is too short to enable the visitor to be decoyed into a winding and circuitous road through the grounds, while a piece of straight road through ordinary park land or shrubbery rarely looks well. But when bordered by a stately avenue, it does away with that

villa-like aspect which short drives of this kind often convey, and carries with it a greater idea of importance. Of course, much depends upon the style of the building to which it leads, but we must leave this question to those more competent to discuss it.

Much the same thing may be said about breadth as has been said about length. Proportion, again, should be strictly observed, and the longer the avenue the wider (in moderation) it should be. A great deal, however, depends here upon the style of the approach. In many places a wide sweep of closely-cut lawn borders the drive on either side, and the avenue in this case merely becomes the background to the turf, and fulfils much the same function as a tall hedge, and loses its more characteristic appearance. But in avenues of the usual kind,

a distance between the two rows of more than 40 yards in long, or 20 to 30 yards in short avenues, tends to dwarf the trees and reduce the desired effect.

With too narrow a margin, the trees, if at all of a spreading character, are apt to meet overhead, and the effect, though pleasing enough in its way, is not exactly what is looked for in an avenue. No hard-and-fast rule seems to have been observed in the past as to either the length or width of avenues, for we find the latter varying to as great an extent as the former; but much of this is probably due to the fact that in avenues, as in many other things, the real object in view is not very clear to those engaged in carrying out the work.

A. C. FORBES,
in *Gardeners' Chronicle*.

PRUNING VINES IN THE FALL.

The rampant, straggling growth of vines, which so many porches and other places display at this season of the year, is often left untouched until spring, detracting from the neat appearance which is so desirable. There is no necessity to leave the work of pruning till spring as most every one does. The work done late in the fall or in early winter would make the premises much prettier.

In my own case I do not prune the honeysuckle nor the akebia at this time, as both are very nearly evergreen here, and it does please me so to see the green foliage about the house in the winter season. But many of the shoots are brought into position, to keep up a nice appearance through the winter. These two vines are pruned in spring. I have read that the akebia should not be pruned in spring, as it would bleed to death. My vine on my porch has been pruned every

spring since planted several years ago now, and it could not be in better shape than it is.

Deciduous vines of all kinds are as well pruned now, besides for the reasons mentioned as in the early spring. It will permit of a little digression to say here that the early flowering jasmine should be planted on the northern side of a dwelling, or the flowers come so early that they are nearly always caught in a late frost.

The new vine from Japan, *Vitis coignetiae*, said to be of brilliant colored foliage in autumn in its native country, is being much planted here now. So far the foliage is but little better than that of a Concord grape, which it much resembles in other respects, minus the fruit, of which none has yet appeared. But I have hopes that as it gets age and makes strong canes, color may come to the leaves.

JOSEPH MEEHAN.
in *Country Gentleman*.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

ERRATA.—The word “unreasonable” on page 478 and the word “reasonable” on page 479, November issue, should read unseasonable and seasonable, respectively.

GEORGE SHERMAN is reported to have taken several subscriptions for this Journal at Kingsville, and at Walkerville; but he has forwarded no money to us, and is not authorized to take subscriptions.

THE AGRICULTURAL ECONOMIST is the name of the paper from which we quoted on page 111, and we gladly correct the error referred to by our worthy contemporary in the following quotation:

The Canadian Horticulturist reprints the biographical article which I wrote in a recent number of the Agricultural Economist on our friend and fellow member, Dean Hole, of Rochester. The portrait is also reproduced. I am gratified at the compliment paid by my excellent Canadian confrère to myself; to the eminent Dean, the rose

grower, and to the Agricultural Economist by this reproduction. But my gratification is somewhat alloyed by finding the title of our paper given as the “Agricultural Epitomist”! Will my friend of the Canadian Horticulturist please do us the justice to correct the error and give us our lawful title?—E. O. G.

DEATH OF JAROSLAV NIEMETZ.—We have received a letter from Mr. Wacław Niemetz, of Winnitza, Podolie, Russia, announcing the death of his uncle, Mr. Jaroslav Niemetz, the eminent Russian Pomologist, who has so often contributed to these pages, and who, a few years ago, made a tour of Canada and the United States in the interests of Russian horticulture. The letter is dated 1st October, 1900. He says, “My aunt has just returned from abroad, bringing news that must shock the heart of every fruit-grower, of the decease of my uncle. He died at Prague, in his fatherland, and is buried beside his mother, Bogina Neimetz,

an eminent Bohemian authoress. Before long I hope to send you a biographical sketch of my uncle.



FIG. 1970.

A CONVENIENT and cheaply made fruit picker is illustrated in the *Farm and Home*, which we copy. It consists of a tomato can at the end of a stick, described as follows:—

"A slit is cut in the bottom, which is turned down, and two nails driven through it into end of pole. A notch is cut as at *a*, to catch the stem of the fruit in. With a turn of the handle, the stem is wrenched from the tree and the fruit drops into the can.

EDUCATED GARDENERS.—The following clipping from *Meehan's Monthly* may interest our gardening readers:

Since the old system of garden apprenticeship has been abrogated, some horticultural schools and other institutions have examinations and give certificates to those who successfully pass them. The London Royal Horticultural Society is doing good work in this line. In April, in each year, they have examinations open to all. The questions are such that any first-class gardener should be able to answer promptly and on the spot. At the last examination, there were 236 candidates. Three hundred were taken as high water mark, and only those who received 200 points and upwards received first-class certificates. Of these, 141 were successful. Only one candidate secured the full 300. This was a lady—Miss E. W. Winlo, from the Horticultural College at Swanley, in Kent. It may be noted here that women are becoming numerous in the horticultural field in the Old World. Of the 141 who received certificates that they were experts in horticultural knowledge, no less than 38 were women.

A VALUABLE WINTER WASH recommended in the *Chronicle* for cleansing the trunks and branches of all of fruit trees from parasites, scale or eggs, is as follows:

For a small quantity, dissolve half a pound of caustic soda in a gallon of water, then add half a pound of commercial potash (pearlash), stir well, then mix both to make five gallons of solution for use. Apply to large stems with a brush, to small branches and branchlets in the form of a spray either with a knapsack pump, or other appliance, when the trees are dormant. The formula was given to Mr. J. Wright a few years ago by Mr. Leonard Coates, a large peach grower and nurseryman in California, and published in the "*Journal*

of Horticulture." This led to experimental trials on different kinds of fruit trees in this country, and these proving completely satisfactory, the wash became extensively and systematically used by those fruit growers who had thus proved its efficacy. It was, and is still, regularly used in Californian peach orchards as the best of all applications for destroying scale, which is there much more persistent in its attacks than in Britain; indeed, Mr. Coates remarked that he should find it extremely difficult to grow peaches with any approach to satisfaction without spraying the trees with this caustic solution every year as regularly as they are pruned.

INSPECTION OF FOREIGN FRUIT is being agreed to by importers and buyers in New York. A cargo of lemons from Sicily was honestly opened out and inspected. This is agreed upon as the only means of keeping up the trade with that country, for if the mean, undesirable rubbish that has been sent to the market late in the season cannot be kept at home and better fruit selected, Sicily will have to give up entirely in favor of California. The success of the latter country is not so much that she grows the best fruit, as that she ships only the best fruit she grows.

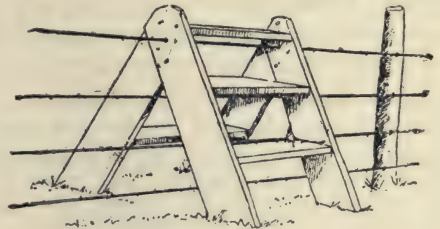


FIG. 1971.

STILE FOR WIRE FENCE.—Wire fences are now common all over our country, and are very awkward to climb. We clip from the accompanying illustration from the *American Agriculturist*, as showing a very convenient stile for climbing such a fence, and one that may easily be put up by an amateur workman.

WHEN an apple orchard is being planted, different varieties ought to be mixed together in adjacent rows to insure cross fer-

tilization of the blossoms by bees. The Vermont experiment station is just publishing the results of experiments which go to show that a majority of varieties of apples do not bear good crops unless mixed in this way. Northern Spy, for example, seldom or never gives a full crop when its blossoms are not pollinated from trees of some other variety.

APPLES AS STOCK FOOD.—There seems to be a wide spread prejudice among farmers against apples for horses or cows. They seem to think them more injurious than useful, and even try to prevent them from having them for that reason. Now we have always noticed that the appetite, either in man or beast, is a fairly good guide as to what is best for them, and one cannot go far astray taking it as a guide. We all know how agreeable to man is the apple, how it tones up the system, helps the appetite, improves the digestion, if eaten ripe; and it is natural to expect the same results with horses and cows. They are ravenous in their appetite for apples, and horses never look in better trim, or take more good of their oats, than when allowed plenty of them. The Sun (Toronto), in dealing with the question, quotes as follows:

Apples for stock food, says the American Agriculturist, should first be sorted, and those most badly bruised set aside for feeding first. The whole should be stored in a cool, dry place—an open shed or barn floor serving for the purpose. These apples, says the Agriculturist, may be fed to any kind of stock, and with proper handling will furnish an excellent fodder. In chemical composition they are equal to roots, and almost equal to corn silage. They have less of muscle forming material than mangles, but have over twice the heating value of these roots. The stock will eat the apples whole, but as there is danger of choking on these, chopping is advised. Even apple pomace, which is now refuse material in many factories, may, says the Agriculturist, be fed to cattle with advantage. Begin, it says, with about one pound to the feed, putting meal with it to get the cows started. This may be gradually increased to about five or ten pounds per day. A test at the Vermont Experimental station shows, according to the Agriculturist, that this pomace has about the same feeding value, pound for pound, as corn silage. The

Agriculturist mentions one case in particular where a Massachusetts farmer who had an enormous quantity of low grade apples, began feeding a large cow which was nearly dry. He fed her in connection with pasture, two pecks of hard Greenings and Baldwins, night and morning. The amount was gradually increased until the cow was eating one bushel per day. With this increase in apple feeding the cow's milk flow increased from four to six quarts per day.

CALIFORNIA CHERRIES. — These cherries are sold at auction, and the prices received run from 50 cents to \$1.75 per package, holding about eight pounds. The great variation in price is caused in part by the variety, but mainly by the condition in which the fruit arrives. What is at all decayed spoils very quickly, and sells for whatever it will bring. The most common package is a box about 9x18 inches and three inches deep. Some are packed in small, round boxes holding a pound each. The retail price on the street at present is 25 cents per pound. Some of them have been picked greener than necessary, and are a little off in flavor, but others that I have tried, especially the Black Tartarian, are nearly as good as though fresh from the tree. It is evident that, when carefully packed and properly handled in transportation, cherries may be left until nearly dead ripe and still shipped a great distance in safety. Like all other California fruit, these cherries are packed so that they show up finely when opened. The boxes are not "stuffed" with rubbish either. While these on top are usually the largest, the difference is scarcely noticeable. These Western fruit men seem to have taken a firm grip on the idea of neat and uniform packages, honest goods and artistic labels. Of course it costs something to put up fruit in this shape, but it pays, and some of these methods might well be copied by those Eastern growers who have used all sorts of packages, labeled them with a blue pencil or marking brush, and mixed inferior fruit that should have been thrown to the pigs.—*Rural New Yorker*.

THE ILLUSTRATIONS representing the Manchester Ship Canal are kindly loaned us by Mr. R. Dawson Harling, agent for the Manchester liners, who has given so much attention to the mutual interests of fruit growers and the Company he represents. He hopes to be the means of securing for us just such cold storage accommodation as we require during the year 1901.

SPRING PRUNING OF PEACH TREES.—In the Report of the University of California for 1898, we notice some illustrations of the method of pruning peach trees. Every tree is carefully and thoroughly shortened in during either the winter or spring. In a comparative test it was found that trees shortened in after the fruit was set produced the best fruit. This is a result well worth our knowing, for it is a great saving of labor to be able to accomplish the pruning and the thinning of the fruit at one time.

CANADIAN PEARS IN ENGLAND.—The year 1900, the first of the new century, will open up to Canadians magnificent possibilities in wider markets, especially for fancy pears, packed in boxes and graded to uniform sizes. Given weekly cold storage service on ship-board and local fruit storage at the shipping points, and a magnificent trade will open up. The enclosed clipping is from the Fruit Grower, of London, England, and refers to pears in Covent Garden market :

The pear trade has been fair. The French senders have been busier lately, and they have marketed some pretty good parcels. Glouts, with 32, 36 and 48 pears in a half-crate, sold from 3s. 6d. to 5s. 6d. each. In boxes the 40 and 48 went

out from 6s to 7s 6d. each. Bon Cures have been plentiful; they came in crates of various counts, ranging from 84 to 135 fruits each, and they sold from 4s. 6d. to 5s. 6d. each. Beurre Magnifiques, in half crates, with 48, 56 and 60 fruits each, sold from 12s. to 14s. each. Crates, with larger counts, with from 84, 96, 108 and 120 pears, sold from 4s. 6d. to 5s. 6d. each. Catillacs, with 60 to 120 fruits each, made from 5s. to 6s. California Glout Moreceau, in cases of 108 fruits, sold from 14s. to 15s. per case. The Canadian pears sold from 10s. to 20s. per case. The quality of these fruits was excellent in every respect. We should like to see more of them on sale in this country, they are the finest pears that are sent us from outside sources of supply, and must seriously affect the Californian pear trade presently.

GRAPES IN ENGLAND.—When grapes in England bring such prices as shewn in the following quotation, we cannot understand why our Canadian grapes bring such a low price. Of course these prices are in London market, and our fruit has been sold in Manchester. Perhaps the former market is the best. The quotation is from the Fruit Grower, London, of Nov. 15th :

The grape supplies continue good, both as regards quality and quantity too. Hamburgs have been particularly fine, and they have sold at very reasonable and low prices according to quality. Values ran from 6d. to 1s. per pound. Best parcels sold readily from 9d. to 1s., and were freely enquired for. Alicantes made from 7d. to 1s. 3d., but the sample had to be good to make 1s. 3d. In fact, few sold at over 1s. Colmars made from 8d. to 1s. 9d., but the best demand was for samples worth from 1s. 3d. to 1s. 6d.; good quantities changed hands at these prices. Gros Maroc have been cheaper. They went out from 9d. to 1s. per pound, though here and there an extra sample did better. Muscats have sold well. The best made from 2s 6d. to 3s. Choicest went up to 3s. 6d. in a few instances. Seconds sold from 1s. to 2s. The supply of Almerias has been plentiful, nevertheless good samples made fair prices. Values ran from 12. to 16s. per barrel. Keepers were in demand and were much sought for, and there is no doubt that they will, later on, bring in good prices to those who stock them in sufficient quantity.



THE ANNUAL WINTER MEETING OF THE ONTARIO FRUIT GROWERS' ASSOCIATION,

To be held in the City Council Chamber, Brantford, beginning Dec. 19th, 1900.

Directors' Meeting on Tuesday evening, Dec. 18th, at the Kirby House, Brantford.

Wednesday Morning, Dec. 19.

9.30—Arrangement of fruit tables.

Correspondence.

Reports of Committees—"New Fruits," Prof. Hutt; "Transportation," W. H. Bunting; "Codling Moth," J. Tweedle.

Appointment of Committees—"Fruit Exhibit," "New Fruits," "Resolutions," "Nomination."

"Experiments in Fruit Growing at the Central Experimental Farm"—Prof. W. T. Macoun, Ottawa.

Wednesday Afternoon.

2 o'clock—Report on Provincial Shipments of Fruit to Manchester in Cold Storage—L. Woolverton.

Address by the Hon. John Dryden, Minister of Agriculture.

"Canadian Fruits at the Paris Exposition and in the British Markets"—Dr. Wm. Saunders, Ottawa.

"New Markets for Our Fruits—England, Hamburg, South America, Australia, the Northwest."

Wednesday Evening.

8 o'clock—Address of Welcome, etc., by Mayor and others.

President's Annual Address—W. M. Orr, Fruitland.

"Notes on Horticulture in France"—Dr. Saunders.

"Cold Storage for Fruits and other products"—Hon. F. R. Latchford.

Thursday Morning, Dec. 20.

9.30—Annual Business—Minutes.

Reports—Treasurer, Auditors, Finance Committee.

Report of Nominating Committee and Election.

"Fruit Packages for Export and other purposes."

"The Apple Barrel."

"The Export Fruit Trade"—J. W. Shuttleworth, Brantford.

Thursday Afternoon.

2 o'clock—"Windbreaks"—A. M. Smith, St. Catharines.

Address by Prof. H. F. VanDeman, formerly Pomologist of the Department of Agriculture, Washington, D. C.

"Forestry for Fruit Growers and Farmers"—Prof. H. L. Hutt, Guelph.

"Forestry for Farmers"—L. B. Rice, Port Huron, Mich.

"Co-operation in Fruit Shipping"—E. Heaton, Toronto.

Thursday Evening.

8 o'clock—"Our Friends, the Flowers"—Miss A. Hollingworth, Beatrice.

"Fruit and Flower Culture in England and Canada"—Mrs. A. Hoodless, Eastcourt, Hamilton.

"Garden Favorites"—Prof. W. T. Macoun.

Addresses by local gentlemen. Music at intervals.

Friday Morning.

9.30—Question Drawer.

Greetings from Representatives of Sister or Affiliated Societies.

Our Affiliated Horticultural Societies—Thos. Beall.

The Pan-American Exposition—Prof. H. E. Van Deman.

Report of Committee on San Jose Scale—M. Pettit, Winona.

Prof. Lochhead, of Ontario Agricultural College, Guelph; D. Fletcher, of the Central Experimental Farm, Ottawa; and Geo. E. Fisher, Inspector, have been invited to be present and address the meeting.

THE PRINCIPAL HOTELS are: Kirby House, \$2.00; Belmont, \$1.50; American, \$1; Commercial, \$1.

A FRUIT TABLE will be provided, to which the public are requested to contribute specimens of interest, to be noticed by our Fruit Committee.

ANYONE may send in questions to the Question Drawer, which is in charge of the Secretary.

ANYONE may join the Association on payment of the annual fee of \$1.00, for which he will also receive the Canadian Horticulturist free of charge, and a present of either a flower or a fruit plant.

W. M. ORR, *President.*

L. WOOLVERTON, *Secretary.*

QUESTION DRAWER.

Winter Apple from Strathroy.

1193. SIR,—I am sending you by mail an apple from a tree which was bearing when I bought this property sixteen years ago. No one has been able to name the apple. Last autumn Mr. Gott, late of Arkona, told me he thought it was a natural, and asked me to send you a sample. By spraying and cultivating I have nearly doubled the size of the fruit. It is an excellent winter apple of fine flavor, and matures in February or March. If it is not a standard variety I would like to know it.

J. E. WETHERELL.

This is a fine large apple, measuring about $3\frac{1}{2}$ inches in diameter, with the markings of the Cayuga Red Streak, and we are inclined to think it is that variety. However, it is not safe to decide from a single sample, and we have asked our correspondent to send more specimens to our meeting at Brantford, when we will perhaps be able to express a more decided opinion. If it is really a new variety, it is worthy of further notice.

Apples for Name.

1194. SIR,—I send you a box of fruit for name. one variety of pear and three of apples. No. 1 has grown in my orchard for thirty years and I have never had a name for it; No. 2 was sent me for Haas and No. 3 for Baxter.

Hyde Park.

GEO. H. NIXON.

The pear sent by our correspondent is Howell. Of the apples No. 1 is Baxter, No. 2 Haas and No. 3 probably Jonathan.

Lice on House Plants.

1195. Can you give me a recipe to destroy lice on house plants. I have just destroyed some good chrysanthemum plants on account of them being covered with black lice. I have tried tobacco smoke, but although it causes them to drop from the plant I notice they recover. I have also tried a solution of tobacco soap, but that seems to injure the plants without destroying the vermin.

G. W.

Erasmus, Ont.

A good way to apply tobacco is by making an effusion in water, and spraying the plants.

Kerosene emulsion is an excellent remedy for the aphids, made as follows:

Soft soap, 1 quart; 2 quarts hot water; 1 pint kerosene, dilute for use to $\frac{1}{4}$ strength.

Apply with Mitchell's hand sprayer, or atomizer.

Boxes of Apples.

1196. SIR,—Would you be able to give us information on using boxes for packing apples in place of barrels. We have a large cider mill and steam boiling of apple-butter, apple preserve, jelly and syrup. Now, after this season is over, we should use our power for some other work. We are carpenters. We would propose to make a half barrel box, say 16 inches square, same size every way; use basswood, poplar, soft elm, etc.; cut the timber in short bolts, and saw on the heading or shingle saw. We think the boxes can be made as cheap as the barrel.

REINHART BROS.

There is doubt that boxes are all right for a fancy grade of fruit, but it is a great mistake to use them for the stock usually put in barrels, for the result would be certain loss.

It is most important that only uniform sizes and shapes of fruit packages be adopted for shipping fancy fruit to the British markets, and now at the outset, when this enterprise in its infancy, is the time to settle upon the size and shape of the packages. For some years we have been experimenting in this line, and have come to the conclusion that the best apple box is one to hold a *bushel of apples*, or about 48 pounds net; while the best form is one that may be piled in any way without waste of storage in either car or boat. Now, speaking generally, two cubic feet will equal one bushel of apples, so by having a box 1 x 1 x 2 feet, we have an ideal form. But for economic storage, we have to modify this form somewhat; and by making our boxes 22 x 11 x 10 $\frac{1}{2}$, *inside measure*, we get a bushel box which will store on the railway to the very best advantage. These boxes are made with inch ends, and $\frac{3}{8}$ sides, if nailed, or $\frac{1}{2}$ inch sides if dovetailed. The word "top" is printed on the end for opening, and the packing is done from the bottom.

The apples are sized before packing, and

the fruit going in a box should not vary more than $\frac{1}{4}$ of an inch in diameter. Thus a box such as proposed by our correspondent would not be advisable. It would be an undesirable shape for the British market.

Apple Tree Borers.

1197. SIR,—I have a young apple tree on which I noticed the bark was getting dark and dead-looking. On cutting into it I found numerous borers from $\frac{1}{4}$ to $\frac{1}{2}$ inch long; they appear to be working in the bark, and I fear are seriously injuring the tree. I also think other trees are affected. The trees have thrived very well up till now. There is no sign of the mischief going on except this discoloration of the bark. Is there any remedy or preventive?
Erasmus.

GEORGE WOOD.

This is one of the most common enemies of the apple grower, and is particularly troublesome in the case of trees which are not growing vigorously. It is known as the flat-headed apple tree borer, (*chryso-*

bothris femorata), a native of America, and in its native state is a typical Buprestis beetle. It is a brassy looking beetle, with under side of body and legs like burnished copper. The beetle is active during the months of July and August, when it deposits its eggs either singly or in groups in cracks of the bark, from which the young larva hatch out, and soon make their way under the bark where it feeds on the sap wood, sometimes completely girdling a tree.

When its presence is discovered, by the the discolorations and castings, no time should be lost in digging it out with a sharp knife and killing the larva; and as a preventive measure, the trees should be washed once or twice in summer with a solution of soft soap and washing soda, applied in about the consistency of a thick paint.

Open Letters.

Doyenne du Comice Pear.

SIR,—I send you to-day a fair sample of Doyenne du Comice pear. I never see it catalogued, and I never see nor hear anything about this excellent pear in any of our journals on fruit. I only know of but one tree of this pear in the province. If this is the case, the variety should not be lost sight of, and I send you the samples of fruit so that you can speak of them as you find them—description as follows: Fruit large, obovate, eye small and open in a deep basin, skin greenish yellow and russet, with a flushed cheek to the sun, flesh white, fine grained, buttery, melting and juicy, highly flavored; season, November. Tree a vigorous grower, always clean and healthy; it is also a good bearing variety, and should be in every collection; it was first raised at Angers. I would also like to draw your attention to two other varieties of pears that are very scarce. I know of one tree of each variety, namely, Marie Louise and Napoleon, both are first-class quality and of medium to large size. Are any of the above growing at your fruit stations?

RODERICK CAMERON.

Niagara Falls South.

Is Our Climate Changing?

This is a question often asked but never satisfactorily answered, because, probably, of the continual fluctuations of the climate throughout the different parts of this vast country. In the study of and in the attempt to determine this question in future years, the wonderfully high temperature of October, 1900, may be used as an important factor.

The highest mean temperature registered here for October during the previous twenty years was 48°.75 (1894) which was about four degrees above the average mean temperature of this locality. This year (1900) it was 53°.97, or 5°.22 higher than in 1894.

The average mean temperature for October for the twelve years, 1880 to 1891 both inclusive, was 44°.04; and for the following eight years, 1892 to 1899, both inclusive, it was 45°.98, or 1°.94 higher than the average of the preceding twelve year period. For the two periods combined, viz., from 1880 to 1899, the average was 44°.81. The mean for October, 1900, being 53°.97 shows the extraordinary increase of 9°.16 of mean or daily temperature over the average October for the past twenty years.

Lindsay, Nov. 1st, 1900.

THOS. BEALL.

Pruning Raspberries.

SIR,—On reading the directions for pruning and training raspberries given in your article on Fruit Culture in the October number of the Horticulturist, it would appear a very easy matter to keep raspberries in proper shape; but if one summer's experience counts anything it is not such an easy matter as would at first sight appear. Perhaps a brief statement of my experience with raspberries would be in order before asking for advice. I have grown a few raspberries in the garden for the past six years, but never paid much attention to their pruning and training. Seeing that they promised to pay well, last spring I set out several rows in the strawberry field. Of the five rows set out, two are

Conrath, two Golden Queen, and the fifth about evenly divided between Cuthbert, Marlboro, Miller, Shaffer and Loudon, with a half dozen Kansas. The rows are eight feet apart, and the Conrath and Shaffer about three feet apart in the row, while the other are about a foot apart, as it is my intention to grow them in a hedgerow about two feet wide, keeping down weeds by a heavy mulch of short seaweed or cut straw. I planted a row of strawberries between each row of raspberries, which is now about four feet wide, but I will narrow down the row to two feet next spring by taking up plants for my spring planting. I pinched the black-caps when about 18 inches high. They sent out laterals very vigorously, and when these were about 2½ feet long I pinched them also. These laterals have in turn sent out from three to five laterals or branches each, which are now from a foot to three feet long. Instead of standing upright like the plant illustrated in Fig. 97, they are sprawling over the ground, forming a solid hedge-

row about two feet high and about five feet wide. Some plants that did not receive the second pinching have laterals 8 feet long, trailing like a Dewberry.

Now the question arises, how am I going to prune these plants so as to get them into shape for the trellis illustrated in Fig. 89? As these plants will be covered with three or four feet of snow will not the laterals be stripped off the main stem?

The Golden Queen and Cuthbert are about five feet high, with an occasional plant six feet high.

What is the usual yield per acre for Blackcaps and Cuthberts or other Raspberries?

How does the Lucretia Dewberry compare with Taylor's Prolific Blackberry in flavor?

What do you consider the best early Strawberry? Also the best late. Soil is a sandy loam. I have over forty varieties under test to fruit next year, but this is no guide for next spring's planting.

Aitkens' Ferry, P. E. I.

D. J. STEWART.

Our Affiliated Societies.

PORT DOVER.—The regular autumn exhibition of fruits, plants and flowers of the Port Dover Fruit Growers' Association took place in the Town Hall on Thursday evening week. There was quite a large attendance and much interest was manifested in the beautiful display of fine fruits and flowers. The latter was especially good and the interest and care displayed by the ladies is deserving of great credit. The plants and flowers were banked along the whole front of the stage and were most tastefully and beautifully displayed. The fruits were also well arranged on tables, apples predominating.

Good music was furnished by the orchestra. President Symington occupied the chair, and after some suitable remarks called on Secretary Carpenter to read the annual report, which shows the society in a flourishing condition. Pleasing addresses were then delivered in turn by Mr. L. G. Morgan, P. Lawson, Esq., and Rev. Mr. Robertson. Mr. Morgan especially urged the members to endeavor to still further extend its usefulness, as apart altogether from its value to the town and surrounding country in a moral and aesthetic point of view, a most tangible result of its organization was the building of the evaporator, which now employed a large number of hands and put considerable money in circulation among the fruit growers and townspeople. But for the formation of the society it is probable the evaporator would not have been built. Mr. Robertson thought that while we could not grow peaches or grapes as well as some other localities, our apples, pears, etc., were equal to any grown elsewhere, and he advocated our banding together to capture the British market and that societies as such should make special displays in these markets. Mr. Lawson advocated the holding of meetings monthly and moved that the next meeting be held on the second Thursday in November. On motion of Mr. Morgan, seconded by Mr. John Waddee, a hearty vote of thanks was tendered the ladies for their valuable assistance. The meeting closed with the national anthem.

The following is the Secretary's report: "It is needless for me to say that we have a horticultural society established in Port Dover. This is well known to some, since the 7th day of February, 1896, when some seventeen gentlemen met in the Town Hall to take into consideration the advisability of establishing such an institution. We have, as some of you well know, had an existence since that time. By the 1st day of Sept., 1896, we had sent in to Mr. L. Woolverton 39 names for the Horticulturist. In the evening of Jan. 15th, 1897, as per statute governing horticultural societies, the officers were elected and the society received the name of "The Port Dover Horticultural Society" in affiliation with the Provincial Society. By the 1st day of Sept., 1897, we had a membership of seventy, and received a grant of \$30, which grant was based upon the membership of the previous year. At the present time our membership is eighty-one. Included in that number we have six lady members. We hope for the year 1901 that that number may be doubled.

All who have attended the meetings during the past three years cannot but realize that this institution has been a great educator in the management of fruit trees and flowers. During the year 1898 this society gave to its members (who saw fit to avail themselves of the gift) a present of 50 cents worth of trees, flowers, shrubs, etc., which came from the following sources: trees from Grimsby Nursery, gladioli and cannas from H. H. Groff, Simcoe. The society gave that year through its secretary, apple, peach, plum, pear, cherry, grape, etc., running through the whole catalogue of fruits, representing a cash value of \$67.55. This year we have given 30 apple, 105 pear trees, 30 cherry, 74 plum, 66 peaches, 25 grape, 1,084 strawberry, 108 raspberry, 65 currants, 110 gooseberry, 25 blackberry, ornamentals, 2 althea, 2 weigelia, 3 crimson rambler roses, 1 spirea, 1 white fringi, 2 clematis, 4 English walnut, 30 cannas, 8 gladioli, at a cost of \$94.15. This year our government grant is \$47.00. In conclusion I wish to thank the members

for the interest taken to further the prosperity of their society. Everything goes off harmoniously and I desire to thank the string band, who have always been on hand to assist in the evening's entertainment; also those who have given us recitations and essays during the past year; also the glee club, for I think without music our meetings would have lost some of their charm. I consider the society in a very flourishing condition at present. Its membership is composed of the very best in town and country and as long as this is the case the society is bound to succeed. All of which is submitted.

THE SECRETARY.

London.—The London Horticultural Society made their fall distribution of bulbs to members in October; each member receiving the following bulbs;

Sixteen (16) Tulips in four (4) named varieties.

Sixteen (16) Iris Hispanica.

Four (4) Narcissus Poeticus ornatus.

Four (4) Narcissus Princess, in all forty (40) bulbs to each member. In all five thousand bulbs were distributed to members.

R. W. RENNIE, Secy.

OUR APPLE MARKETS.

Mr. J. M. Shutt ewart, Brantford, gives us the following notes on the English markets for apples:

Messrs. Simons, Jacobs & Co., Glasgow, cable: "Our apple market is stronger to-day at the following prices for strictly first-class sound fruit: Baldwins, Spitz, Seeks, 12s. to 14s.; Spys, Greenings, 13s. to 15s.; Kings, 18s. to 22s.; Golden and Rox Russets, 10s. to 12s.; Cranberry Pippins, 14s. to 16s.; common grades and lower conditions 2s. to 3s. less than above quotations."

Messrs. Garcia, Jacobs & Co., London, cable: "Our market is steady for good sound fruit. The following are the ruling prices for the best grades: Greenings, Spys, Spits and Seeks, 12s. to 14s.; Baldwins, 11s. to 13s.; Golden and Rox Russets, 10s. to 12s.; wasty fruit 2s. to 3s. less."

Messrs. J. H. Lutten & Son, Hamburg, cable: "Good sound red apples rule from 12s. to 15s."

Messrs. Simons, Shuttleworth & Co., Liverpool, cable: "A large number Canadians landing in bad order. Quality and condition are in strong demand, but lower grades and conditions are difficult to move. Only finest fruit wanted. Seeks, Baldwins, Can. Reds, Phoenix, 10s. to 12s. Spys, Greedings, Golden Russets, 11s. to 13s.; Snows, 15s. to 18s.; Kings, 17s. to 19s.; T. Sweets, 8s. to 10s.; lower grades and conditions 2s. to 3s. less."

Messrs. James Adam, Son & Co., write under date of November 10th from Liverpool: "Canadian arrivals still leave much to be desired, as not only are they irregular, but in some instances disappointing. Of course we know that the best stock is kept back until the commencement of re-packing, and believing this to be the case this season we look for better things in the near future. At the same time it is not a little surprising that much of the fruit auctioned this week should ever have been shipped at all, as so far is it from being No.

1, which is what is wanted this season, that we doubt even with light supplies whether good prices could have been obtained. Greenings, perhaps, were worse than the other varieties, though there were also some poor lots of Baldwins, in addition to which we are sorry to say results, generally, have been very much prejudiced by the large number of mixed lots, i. e., two or three barrels of each variety, which are only salable at comparatively low prices. Newtown Pippins are not doing as well as we should like to see them, in fact the market for them is rather disappointing seeing that the quality is much improved, and as Christmas approaches we trust better results will be obtainable."

Messrs. Simons, Shuttleworth & Co., Liverpool, cable the following quotations from to-day's apple market, November 21st, 1900,

For sound fruit—Baldwins, Seeks, Phoenix, 11s. to 13s.; Spies, Greenings, Golden Russets, Cranberry Pippins, 12s. to 14s.; Canada Reds, Ben Davis, Rox Russets, 10s. to 12s.; Kings, 21s. to 23s.; Snows, 15s. to 17s.; Talman Sweets, 8s. to 10s. Common grades and wasty fruit sold from 1s. to 4s. less than above. Market opened strong and continued so throughout the day, with a slight advance. A large proportion of receipts continue to land in bad condition.

Messrs. Woodall & Co., Liverpool, cabled to-day, Nov. 21st, as follows:

21,000 bbls. sold. Market opened strong and continued so during the day. Baldwins, 11s. to 13s. 6d.; Kings, 15s. to 24s.; Greenings, 12s. to 17. Market is showing great activity, and prices hardening, and we anticipate a very strong demand for good fruit.



THE
CANADIAN HORTICULTURIST

PUBLISHED BY THE
FRUIT GROWERS' ASSOCIATION OF ONTARIO

VOLUME XXIV

EDITOR, . . . LINUS WOOLVERTON, M. A.

OFFICE AT GRIMSBY.

1901.

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FIG. 1972. DIRECTORS AND OTHERS AT HAMILTON IN 1892.

THE CANADIAN HORTICULTURIST

Vol 24

1901

No 1

** JANUARY **

OUR ASSOCIATION.

AWAY back in the year 1859, a few gentlemen interested in fruit growing, met in the Board of Trade Rooms, Hamilton, and formed the Fruit Growers' Association of Upper Canada, with the Hon. Judge Logie, President, George Leslie, Esq., Toronto, 1st Vice-President, Chas. Arnold, Paris, 2nd Vice-President, and Delos W. Beadle, St. Catharines, as Secretary and Treasurer.

Nine years later, in 1868, at a meeting held in the Court House, Hamilton, a Constitution and By-laws were adopted, under the provision of the Agricultural and Arts' Act, with the title of the Fruit Growers' Association of Ontario. The membership then was 242.

In October, 1877, the question of publishing a monthly magazine devoted to the objects of the association was discussed at great length, and the whole question left in hands of a committee consisting of Messrs. Burnet, Saunders, Leslie and Beadle, to inquire into the cost and report. This committee reported favorably, advising the publication, and estimating the cost of a

sixteen page monthly at \$860 per annum. The report was adopted and it was ordered that the journal be published on the 15th of each month, beginning with the January number and as soon as possible to catch up with the date.

For ten years the journal was ably edited by Mr. D. W. Beadle, one of the foremost horticulturists in Ontario, and in 1887, he was succeeded by the present Secretary and Editor. The growth of our association as a result of this publication has been phenomenal. In 1886, the number was 1652; in 1900, the paid members numbered 4500, with promise of considerable increase in 1901; while the little sixteen page monthly of 2000 copies, published for \$860 per annum, has grown to be a 48-page monthly, of 5500 copies, published at a cost of \$2,500 per annum, and given free of charge to each member.

In the year 1889, at a meeting of our Association in the Court House, Hamilton, a photograph was taken showing the Directors and others as they came out of the meeting at noon. This will be of especial interest to some of our friends of to-day,

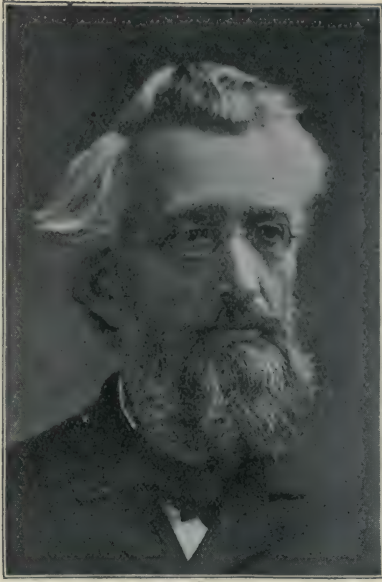


FIG. 1973. D. W. BEADLE.
Elected Life Member in 1900.

for it shows the faces of some of our highly esteemed and prominent Directors and patrons now passed away.

In the front row, beginning from the left, we notice Messrs. W. E. Wellington, J. A. Morton, M. Pettit, A. M. Smith, A. McD. Allan, Thos. Beall, *P. C. Dempsey, and *J. M. Denton; in the second row, T. H. Race, *John Croil, *Prof. Panton, Dr. Saunders, the Secretary, J. K. McMichael, G. C. Caston, A. H. Pettit, and further in the rear, W. M. Orr, Jas. Goldie, E. Morden, L. B. Rice, P. E. Bucke, W. W. Hillborn, E. D. Smith, and *Warren Holton.

In 1894, we formed a plan for the establishment of Fruit Experiment Stations, to be governed by us in conjunction with the O. A. C. at Guelph, which, while it increases our official work, largely increases our usefulness, and from the reports from these stations, publications of permanent value will soon result.

In 189-, Mr. Thos. Beall, of Lindsay,

*Deceased.

read a paper before our association in which he advocated the formation of Horticultural Societies more in accordance with the true intent of the Act than those already existing, most of which seem only to aim at the division of the legislative grant among a few professional exhibitors, while the membership as a whole get little or no benefit. The Act contemplates five objects, as follows:— (1) The holding of meetings for discussion and for hearing lectures on subjects connected with the theory and practice of improved horticulture. (2) The promotion of the circulation of horticultural periodicals. (3) The importation and otherwise procuring seeds and plants of new and valuable kinds. (4) The offering of prizes for essays and questions of scientific enquiry relating to horticulture. (5) The awarding of premiums for the invention or improvement of horticultural implements and machinery for the production of all kinds of vegetables, plants, flowers and fruit, and generally for excellence in any horticultural production in operation.

Of these objects, most of the old style horticultural societies choose out a portion of the fifth object only and totally disregard the other and more important objects. To remedy this evil, our directorate appointed Mr. Thos. Beall organizing director of (affiliated) horticultural societies, whose by-laws are so modified as to give greater attention to the other and more important objects and less to the mere holding of an annual show of flowers. The scheme has met with the approval of the leading horticultural people, and already we have fifty such affiliated societies, with over fifty members each, all receiving our journal and report and plant distribution free, and an annual visit from some able lecturer sent out by our association. We hope it may not be very long before every horticultural society in the Province will fall in line and thus reach a place of wider usefulness.

This constant enlargement of our work

rapidly increases the official labors of our association, until in 1899, the executive, recognizing the needs of the work, engaged a regular assistant in the person of Miss Wilena Brodie, who had already been for ten years engaged as private assistant at the expense of the Secretary. And since this young lady is now officially connected with our work, and is so intimately connected with every department of it, we have secured a photograph of her to be engraved for the readers of our journal. Miss Brodie is the daughter of Mr. Jas. Brodie of Grimsby,

a son of the late Rev. Geo. Brodie, of Trinidad. Her education at high school and business college, united with great natural business capacity, admirably qualify her for the work of bookkeeper and stenographer for our association. Added to this, she has become an expert in photography, and the larger part of the illustrations used in this journal are her work, though not often credited. By this means we are able to give originality to our illustrations, which could not be had without such able assistance.



FIG. 1974. MISS WILENA BRODIE.

WINDOW DRESSING AT A GLANCE.

WHETHER a fruiterer does a good business or not depends much upon his stock and his method of dealing with it. A tastefully dressed window does much to draw customers. There is little doubt that the best results are obtained by using show baskets and punnets.

In these one can make a very effective display of fruit, and at the same time save much labor and trouble over ordinary methods of window dressing, as the baskets can be easily placed in and removed from the window as required. As we have said before, photography gives an inadequate

idea and unsatisfactory representation of the real article, which, if reproduced, would hardly be distinguishable. By manipulating the blocks and punnets which we have had engraved for this purpose, we hope to give on paper a skeleton key, so to speak, of some of the most attractive and best methods of window dressing. All the fruiterer will have to do is to take the illustrations and work by them according to the few simple instructions given with each illustration.

For this purpose the window board should

be the whole length of window, and wide enough to allow of taking show baskets and punnets. Fruit to be placed in these baskets appears in type. The window board should be covered with white paper each time the window is dressed. Some soft packing material should also be placed in the bottom of the baskets, the whole to be covered with a sheet of tissue paper. Choice dessert fruits should also be packed about the base in tissue, thus forming a nest or cup for the fruit to rest in.

—*Journal of Greengrocery.*

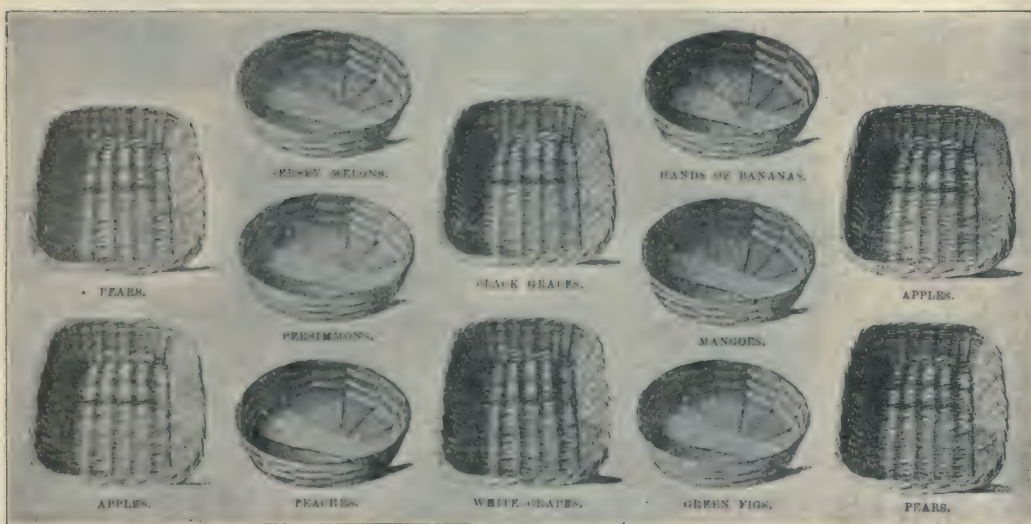


FIG. 1975. A FRUIT WINDOW.

NOTE.—The show or baby baskets and punnets, as set out in our illustration, are sufficient to cover a window-board 5ft. 6in. wide. Each basket to be filled with fruit, the names of which appear in type. For larger shops the window-boards may be increased in length, but not in width, as 3ft. 4in. will be found quite wide enough if the fruit is to be got at easily. The baskets will be increased in number accordingly. As regards punnets, those shown are large sized ones so much in use now in window dressing for exhibiting selected fruits. It will be seen we have introduced two of the newest fruits, viz.; the Persimmon and Mango. Even if the fruiterer has no sale for these they should have a place in the window, as one of the most important points to be remembered in window dressing is to cause attraction, and this these fruits are doing wherever they are exhibited.

BETTER GARDENS—HOW ARE WE TO GET THEM?



REVIVAL of gardening would bring health, happiness and profit to Canadian homes. Let us see what is the best way to reach this end so that the first summer suns of the country may see a blossoming forth of our neglected home grounds. Much would be gained if the officers of horticultural societies, who may happen to read this, would make it a duty to rouse their members to make efforts

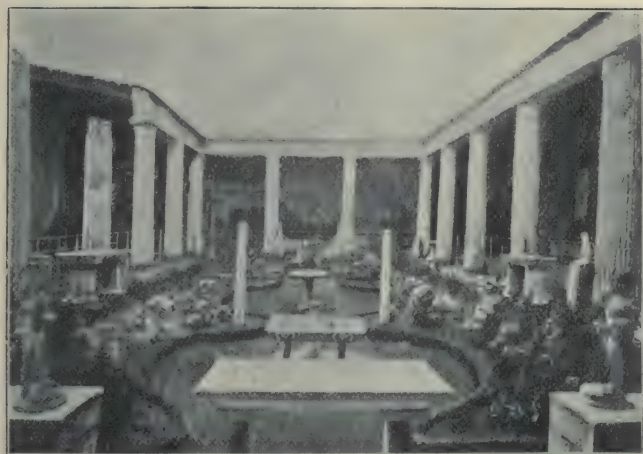


FIG. 1976. ARCHITECTURE IN THE GARDEN.
"GARDEN OF POMPEII."

in this direction. We will try to make some useful suggestions as to principles, which, if followed, will give better results in gardening than we now have. First of all, gardening is varied, and we must have individuality and variety in it. As a picture is better if it be an expression of some phase of mind of the painter, so a garden is far more pleasing and interesting if it shows the tastes of the owner. Let us not grow any kind of flower because our neighbors cultivate it, but let us grow the plants of which we ourselves are the fondest, or which have old associations to us. Let those who are fond of quiet and seclusion have their gar-

dens closely hedged or fenced, and let those who wish to make a display have ground with no fences, such as one sees in American towns. Few people have a faint idea of the number of desirable features that can be used in garden-making. We give some illustrations of great gardens of the world, from which we may learn what means people in other times and countries have used to enrich their pleasure grounds. First, let

the first cut show a garden of ancient Rome. The embellishments are chiefly architectural, pillars and such like. Such ornamentation would be out of place in this climate, but the architectural enrichment of rustic bridges, summer houses and seats is something of which we might have more. Sundials are a very appropriate garden ornament. The next cut is of the garden of the Generalife in Spain, and illustrates the beauty that may be gained by a large use of greenery and water. Water is an ornamental feature which is very seldom used in Canadian gardens, but there is

hardly anything gives more charm to the landscape. One way in which it may be introduced is to have reservoir supplied with water by a windmill. Many farms have such windmills, and could not be any very great trouble to use them for this. These basins might be very quickly planted with hyacinths and other quiet plants. In many places the lands might be drained so as to form a pond near the house. This, if stocked fish, would be very profitable as well as ornamental. The Government has been making efforts to encourage the raising of fish in ponds, but the farmers seem very slow to take it up. A pond at the Agricultural Col-

lege is one of the prettiest features of the grounds. If the owner has fears of its causing malaria, a plot of sunflowers would be a safeguard, for these plants are a sure preventive of malaria. In city gardens fountains are very nice features. Then as to greenery hedges, they might be much more employed in our gardens than they are at present. The white spruce, the high to cut, are cheap and servicable hedges. Somewhat more expensive but more pleasing are the white cedar or privet hedges. Flowering hedges, such as the Japanese Quince, or the Spireas, are very effective. Then the lawn might be much more beautiful than it now is. No one who has not travelled can realize what a thing of beauty it becomes with great care. Cutting, raking, watering and rolling, will do wonders. Bare spaces under trees may be made green by using a shady nook mixture sold by our principal seedsman. In sandy plots at summer resorts a nice show of verdure may be had by the use of squash and melon plants. It may sound rather commonplace, but we have been

pleased with the nice change it seemed to make in contrast with the surrounding desolation of sand. Vines of all sorts are another form of greenery useful in beautifying yards. They may cover unsightly fences and sheds.

Our third cut is of a garden of the villa D' Este in Italy, and shows the advantages of terracing in a hilly situation. Terraces are about the only means by which the side of a ravine can be made use of. They should be connected, as in the picture, by steps. Where the ground is level terraces should never be made. They are an utter waste of money, and a nice well kept lawn should take their place. Our next cut re-

presents a garden at Hampton Court, England. It is a formal garden of the best style. In this kind of garden everything is stiff and regular. All the lines are straight. Flower beds are in the shape of mathematical figures; the trees and shrubs are clipped into various shapes. This style of gardening is very suitable for plots in the squares of towns. It goes very well with the buildings, and seems more in place than the usual uninteresting stretch of grass and trees. We would like also to see two or three private gardens in each town designed



FIG. 1977. "GREENERY AND WATER."
"GARDEN OF THE GENERALIFE," GRANADA, SPAIN.

in this style. It has a quaintness and charm that it would be a pity to lose. The clipping of the trees might be dispensed with to a large extent.

A second principle with which we might work in improving our gardens is that of combining use with ornament. Some valuable timber—trees such as the white ash or walnut, or such fruit trees as the cherry or mulberry are quite as ornamental as most of the trees usually planted on the home grounds. Of smaller trees, members of the vegetable kingdom, some are both useful and beautiful. The artichoke is a plant that we would like to see much more widely



FIG. 1978. "TERRACES AND STAIRWAYS."
ITALIAN GARDEN NEAR ROME.

grown. It has a nice yellow flower, very like the sunflower, and its roots make one of the best vegetable products that we have. Once put them in and they are so prolific that you will never be able to get rid of them should you want to do so. Freezing does them no harm, and if cooked for a long while their flavor is almost unsurpassed. Used raw they are an exceedingly economical food for hogs. The asparagus will be most ornamental if the stalks are allowed to grow the latter part of the season, though the yield of the bed next year will not be as good. Grape vines are a very taking ornament for the walls of a house.

Another line along which we might work is that of economy of labor. Let us not go on planting annuals year after year where perennials will do. Nor let us buy foreign novelties where native trees and plants would be better. The catalpa tree is being widely planted now, but although its leaves and blossoms are beautiful, it is until the beginning of July an unsightly stick in the garden. Our native elm has much more graceful lines, and the scarlet maple and the mountain ash give finer color effects. The most satisfactory shrubs for the garden are the old favorites. The Forsythias are especially desirable on account of their early bloom. The Japan quince, Tartarian honeysuckle, Thunburg's barberry, are all good shrubs. We would call attention to the variegated elder, with its white and green leaves, as being perhaps the most elegant of all our shrubs. It is hardy, and can be had at a very low price. Wild flowers can be obtained by any one, and coming into flower a little earlier in the garden than they do in the woods, give pleasure in the first spring days. Large clumps of red and white trilliums are very effective if grown side by side.



FIG. 1979. "FORMAL GARDEN."
GARDEN AT HAMPTON COURT, ENGLAND.

The crown imperial is very handsome also if grown in clumps. Of roses we think *rosa rugosa* the most satisfactory for general culture.

Another way in which we might have better gardens is to have gardens planted with evergreens, and trees with ornamental bark or berries to make the place bright in winter. This subject we dealt with fully in the

January number of the *Horticulturist* for 1900, and we refer our readers to it.

We hope all members of Horticultural Societies will try to rouse the interest of their friends and neighbors in gardening, so that the home grounds throughout the country may become a much greater source of pleasure and profit to their owners.

Toronto.

A. E. MICKLE.

CENTRAL EXPERIMENTAL FARM NOTES—XII.

WHEN four inches of snow fell on November 14th, it was thought that it would soon go away again as that date was much earlier than winter is usually expected at Ottawa. The snow, however, kept increasing, and by Christmas there was fully a foot and a half on the level. The snow which fell in December had fallen on unfrozen ground, and the former kept it in this condition until December 17th, and even up to Christmas there was only about three inches of frost there. There has been very little soft weather since the first snow fell and December has been quite cold. The coldest day was of December 10th, when the temperature fell to 18.8° Fahr. below zero.

There have been some very fine winter scenes this year at the Central Experimental Farm, there being more hoar frost and snow which clings to the trees than usual. The winter scene shown in this number is from a photo taken by Mr. F. T. Shutt, and gives some idea of the beauty of the landscape. The bright fruit of the high-bush cranberry, of which reference was made in the last notes, looked fine this month in contrast with the fresh snow.

The question of cover crops is an important one for the fruit grower to think about during the winter, and the following quotation from my report for 1899, giving the

results of our experiments, should prove both helpful to those who propose planting a cover crop next year, and suggestive to those who have not yet decided to do so :—

“Since 1895, orchard cover crops have received much attention at the Central Experimental Farm, and in the reports of the *Horticulturist* for 1896, 1897 and 1898, considerable space has been devoted to this subject ; but the importance of cover crops in the orchard cannot be too often nor too strongly impressed upon the fruit growers of Canada. After the disastrous effects of the winter of 1898-99 on fruit trees in some parts of Ontario, the fruit growers living in those districts must realize more than ever before, perhaps, how necessary it is to have some protection for the roots of their trees.

“It is now quite generally conceded that cultivation should cease in orchards in Eastern Canada about the middle of July. At this time the season's growth is well advanced and the ripening of the wood soon begins. The seed which is to produce the future cover crop should now be sown. In Eastern Ontario, the common red or mammoth red clover, sown broadcast at the rate of twelve pounds to the acre, will probably make the most satisfactory cover crop. It will reach a height of from ten to twelve inches by winter, and will form a dense mat of foliage which will make a thick mulch, thus



FIG. 1980. WINTER AT CENTRAL EXPERIMENTAL FARM, OTTAWA. (Shutt.)

preventing the alternate freezing and thawing of the ground which occurs in late winter or early spring, and which often proves so disastrous to trees. After the seed is sown, the soil should be rolled with a heavy land roller, which will cause the moisture to rise to the surface of the soil and assist the germination of the seed. This rolling is very important, as should the seed lie in the ground for any length of time without germinating, there will not be time for a good cover crop to be formed before winter. No nurse crop, is, as a rule, necessary. In places where the soil is very dry, lucerne or alfalfa might be sown with advantage, as the seed of this clover appears to germinate more readily than that of the common red clover. Cow peas and crimson clover may be used in the warmer parts of the country. The hairy vetch (*vicia villosa*), has been used with very satisfactory results by

Mr. J. Tweedle, Fruitland, Ontario.

“Another advantage of clover growing in an orchard in autumn, is that much of the plant food in the soil which has been liberated and made more easily available by the constant cultivation during the early part of the summer, is prevented from leaching by being used by the growing plants, the clover thus becoming a ‘catch crop,’ as well as a cover crop.

“Where soils suffer from lack of moisture in a dry time, the clover should be ploughed under as early in the spring as the land can be worked, and cultivation begun at once. This will conserve much of the moisture which would otherwise be transpired through the leaves of the growing plants until they were ploughed under towards the end of May, which is the usual time. If the soil, however, contains plenty of moisture, it would be better to let the clover grow until

about the third week of May, as there would be additional humus and nitrogen to be obtained by this method.

"The great improvement made in the soil by the annual plowing under of clover crops is clearly shown in figures given by Mr. G. T. Powell, Ghent, N. Y., U. S., at the annual meeting of the Ontario Fruit Growers' Association held at Whitby in 1899. After crimson clover, which had been used as a cover crop—had been ploughed under in an orchard for three years, the soil was analyzed and the following differences were found between that where the clover had and had not been ploughed in :

	Clover ploughed under for three years. Per cent.	No clover ploughed under for three years. Per cent.
Water....	15'00	8'75
Nitrogen..	'21	12
Humus...	2'94	1'91
Phos. acid.	'015	'008

The gain per acre would be :

Water.....	6'25 per cent=	46,875 tons.
Nitrogen.....	'09 " =	1,350 lbs.
Phos. acid.....	'007 " =	105 lbs.

"Although such good results might possibly not be secured by the use of red clover, still the improvement in the land by such treatment would be very great.

"For the reasons mentioned in my report for 1898, the methods which are recommended above have not been adopted at the Central Experimental Farm since the spring of that year. Clover is used for a cover crop, but it is only ploughed under every two years. As the soil here is light and lacking in humus, but apparently contains plenty of moisture, a system of cutting the clover with a field mower and leaving it to rot in the orchard, has been followed. In 1898 five cuttings were obtained, the clover being from eighteen to twenty inches high at each cutting and just coming into bloom. It was estimated that from the first four cuttings 25 tons per acre of green crop were left lying on the field. Clover sown in 1898

was cut four times in 1899, and the crop from each cutting appeared fully as good as that of 1898. It can easily be imagined that this is improving the soil rapidly.

"Common red clover was sown in the orchards in 1899 on May 10, 17, 25 and 31 ; July 4, 11, 18 and 25. There was a good cover crop obtained from all of these sowings, with the exception of that on May 31, which did not germinate well, and from those of August 2, 9 and 16 at which time the weather was very dry and the seed did not germinate until September, and then but thinly. Clover sown on May 17 and 25, was nearly smothered by purslane, but eventually overtopped it and came on well and formed a good cover crop by autumn.

"In a part of the apple orchard where the soil is very poor, two green crops were ploughed under in the summer of 1899. On June 10, clover which had formed a cover crop the previous winter was ploughed under and the land was then re-sown with buckwheat, soja beans, English horse beans and field pease, with the following results :—

"Buckwheat sown broadcast on June 17th, at the rate of 2 bushels per acre, came up on June 23. Ploughed under on July 25th. Average height, 27 inches. Estimated yield, per acre of green crop, 8 tons, 335 pounds.

"Soja Beans :—Sown in drills 6 inches apart on June 17, at the rate of 3 bushels per acre, came up June 24. Ploughed under on August 7. Average height 14 inches. Estimated yield per acre of green crop, 3 tons 466 pounds.

"English Horse Beans :—Sown in drills 6 inches apart on June 17, at the rate of 4 bushels per acre, came up on June 27. Ploughed under on August 7. Average height 18 inches. Estimated yield per acre of green crop, 6 tons 592 pounds.

"Field Pease :—Sown in drills 6 inches apart on June 17, at the rate of 3 bushels per acre, came up on June 24. Ploughed



FIG. 1981. HIGH BUSH CRANBERRY AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

under on July 29. Average height 26 inches. Estimated yield per acre of green crop, 5 tons 1,191 pounds.

"After these crops were ploughed under the land was re-seeded with clover on August 2, 9 and 16, in the hope of getting a cover crop by winter, but owing to nearly six weeks of very dry weather about that time, the seed did not germinate until September and a cover crop was not formed. The trees in this part of the orchard were mulched with manure.

"On July 6, English horse beans were sown in a part of the orchard where the soil was light and where the snow does not lie well in winter. On July 16, after the beans were up, common red clover was sown among them at the rate of 12 pounds per acre. The beans reached a height of 18 inches by autumn and helped very much to hold the snow while they must have gathered much nitrogen during the growing season. There

is also a good stand of common red clover.

"On July 25, Lucerne clover was sown in a part of the orchard where the soil was very light. It reached a height of from 7 to 12 inches by autumn, and although there was a large number of plants destroyed by a storm carrying away the surface soil, there was a fairly good cover crop.

The advantage of using leguminous plants, such as clover, pease, beans, and vetch, is that by means of the nodules or tubercles on their roots they assimilate free nitrogen from the air, and hence much of this expensive plant food is obtained without other expense than the price of the seed. Buckwheat and rye do not belong to this class of plants, and while useful in the orchard, are not as valuable as the others, as they do not gather nitrogen from the air.

W. T. MACOUN,
Horticulturist, Cent. Expl. Farm,
Ottawa.

OUR BRANTFORD MEETING.



FIG. 1982. W. M. ORR, PRESIDENT FOR 1901.

ONE of the best meetings we have ever held in point of real work and valuable addresses was held in Brantford the 19th, 20th and 21st of December last. Not that many members showed up in attendance from the locality, but a fine attendance of our best fruit growers, shippers and representatives of societies and colleges, and all combined to lend importance to the occasion.

After the report of our experimental shipments was presented by the secretary, which was given our readers in the December number, the Hon. John Dryden gave an address containing much encouragement to fruit growers. He dealt chiefly with the San Jose scale and his efforts to perfect a system of continuous cold storage transportation of tender fruits to England. Among all the branches of agriculture, he said, there was none of more importance than fruit growing, and he instanced the success of the Ontario

exhibits at Chicago and Paris. Their results had been achieved by time and effort. The fruit farmers, he said, have had to learn that fruit trees could not be used as forest trees, and that they had to be continually tended, that fruit suitable to one section was not suitable to another. In that work the Government experimental stations had aided. Insect pests, he urged, had to be fought by the farmers unitedly. Some people were apt to place too great reliance upon law. It was necessary, but it could only be enforced when backed by public opinion. They could not drive the people generally, and they could not drive farmers especially. When he established the travelling dairy to educate the farmers and farmers' wives to right methods in the home, he was asked why he did not start cheese factories and creameries. They came, as he expected, from the education afforded from the travelling dairy. He was sure that within five years those who had opposed his San Jose scale legislation would say he had been right. He would be the proudest man in Ontario if for twice \$100,000 he could have stamped out the scale. Even with the methods being adopted it was found that the pest was getting ahead of the inspectors, and that \$300,000 would be required to annihilate it. That was more than the legislature would vote. It remained, and would for some time to come. The work done had stamped out the scale in at least 100 districts. The nurseries, he believed, were the chief danger, and he would enforce the proper fumigation of stock. No treatment yet adopted have absolutely killed the scale, but he knew no better way of meeting the difficulty than by continuing the present method of spraying.

COLD STORAGE TRANSPORTATION.

Turning his attention to cold storage transportation to England, he said the individual could not work out his salvation without help. The only thing discovered yet to ensure delivery of tender foreign fruits in England was cold storage. There was variance between himself and the Dominion Government on two points. He wanted lower temperature and circulation. He wanted it remembered that if fruit was decayed no cold storage would put it in condition again, for which reason it was absolutely essential that it should be put up in cold storage as soon as picked, and kept in cold storage until and after it reached Liverpool. He had had much labor and anxiety all summer over the question. The Dominion authorities had said Canadian peaches and grapes could not be shipped to England successfully, so he had started to work. If fruit could be held in cold storage on land he was convinced it could at sea. The cold storage should be provided, and they wanted boats leaving every week. He had met with opposition, but to ensure what he wanted he had built in the ship *Trader* a cold storage department. The results were shown in Mr. Woolverton's report. Mr. Dryden emphasized very strongly the need for continuous cold storage, and said if the fruit dealers wanted it they would have to have it. What, he asked, would that trade be worth to Ontario? Would it not be worth spending \$3,000 a year for several years to obtain? It would, a hundred times over, he believed. The Ontario Government would aid in building cold storage houses here, and had provided a proper car—the car which had carried fruit successfully in South Africa. He had the lecturers to farmers' institutes to explain the cold storage problem. He believed it one of the greatest questions before the Province to-day. It might be termed class legislation, but it benefited every class, and for his efforts on behalf of the farmers, Mr. Dryden said he sometimes had

more appreciation from financiers and bankers than from farmers themselves. He urged the association to continue its work energetically in aid of one of the greatest of the country's industries.



FIG. 1983. MR. M. PETTIT.

Mr. M. Pettit, of Winona, read the report of the San Jose Scale Committee, which recommended that the system of general inspection be continued, and that, as the scale cannot now be exterminated, instead of wholesale destruction of the trees, an endeavor should be made to control, and that such treatment be made compulsory upon individual growers, under supervision of the Department of Agriculture, both as to material and the carrying it out. It was recommended also that the department be urged to relax no effort in the matter, and that a committee be appointed to confer with the Minister as to the methods to be put in operation during the coming season. "Your committee believe," the report concluded, "that a serious mistake was made by the large number of owners of infested orchards who offered determined opposition

to the carrying out of the original intention of the act, and that if public opinion had supported the Minister in his efforts the scale to-day would be almost if not entirely exterminated. We desire also to place on record our appreciation of the efforts of Hon. John Dryden in behalf of the fruit industry of this Province." The report was adopted.

The Hon. F. R. Latchford was in attendance and ably addressed the association upon cold storage, explaining in particular the principles upon which the Hanrahan Cold Storage Car was constructed. After explaining that for years he had taken a keen interest in the question, and was a fruit and flower grower, he spoke briefly on the unscientific and therefore unsuccessful methods hitherto attempted, and treated of the nature of decay. For twenty years decay in animal life had been studied and had resulted in greatly ameliorating the condition of the human race. Decay in vegetable matter resulted from three causes—moulds, yeasts and bacteria. On one bunch of grapes Pasteur had discovered twelve different moulds. The action of moulds and yeast was facilitated by dampness. Yeasts and moulds could not grow in low temperature, say 40 degrees and under, and bacteria could not propagate. That was why low temperature preserved fruits. It had long been known how to develop low temperatures, but the application had been neglected. It had been proven that putrefaction would not go on in pure air, and pure air was possible of attainment. Cold storage to be practicable had to be economical. The speaker went on to show that scientific cold storage demanded pure, cold air. The material in storage gave off odors which had to be removed. The disadvantage of bringing in hot air from outside to be purified and cooled was pointed out, and it was shown how instead the cold air of the car could be constantly purified. This is the principle of the Hanrahan method, and from

the model of the car Mr. Latchford illustrated what he meant. The ice is held in a compartment which divides the car into two sections. The air at the ice box being colder, and therefore heavier, falls and travels along the floor of the car to the end, where its temperature will increase, and it will rise and flow back to the ice box. Then the moisture dissolves the gases and odors gathered from the contents of the department, and there go off in water by a waste pipe, while the air purified goes on another journey through the car. Mr. Latchford pointed out that fruit might just as well be cooling in the car on its way to the market as standing to cool in a cold storage house at the place of shipment. He spoke of the importance of the fruit industry, and declared that the Government would aid them in every way possible.

THE FRUIT MARKS ACT.

This is the new title given by our association to the Apple and Pear Marks Act, which at our request was presented before the House of Commons last winter, but which was so strongly opposed by the apple speculators, who buy in large quantities, that it was withdrawn. Only as late as Thursday, the 13th inst., just before our meeting, a large body of apple packers at a banquet to Mr. G. H. Fowler, at Brighton, passed a resolution expressing "disapproval of the same, believing that it would be impracticable and unworkable, and not in the interests of the apple export trade. While deprecating the practice of 'topping' resorted to by some shippers, the prevention of which this bill aims at, we are of the opinion that the bill interferes with private rights and cannot be made to accomplish the purpose for which it was intended."

In view of the opposition, we appointed a large committee of both apple growers and apple buyers, including Mr. J. H. Shuttleworth of Brantford, well known in the trade, and Mr. Elmer Lick, an extensive apple

grower at Whitby, and the whole question was fought out with great ardor in committee before an agreement was reached which would satisfy both grower and buyer. The changes were such as to give perfect freedom to anyone as to whether he would use the specified grade marks, but if he did use them, his packages were subject to inspection, and a fine if found fraudulent. As this bill is an important one and means everything to the future of our apple trade, we give the text of the proposed act in full, as revised by our committee and accepted by our association.

1. This act may be cited as Fruit Mark Act, 1901.
2. This act shall come into operation on the first day of July, 1901.

3. Every person who, by himself or through the agency of another person, packs fruit in a closed package intended for sale, shall cause the package to be marked in a plain and indelible manner before it is taken from the premises where it is packed,—

- (a). With the initials of the christian name and the full surname and address of the packer.
- (b). With the name of the variety, and
- (c). With the designation of the grade of fruit.

4. No person shall sell, offer, expose or have in his possession for sale any fruit in a closed package unless the name and address of the packer is marked upon the package in a plain and indelible manner.

5. No person shall sell, offer, expose, or have in his possession for sale any apples or pears packed in a closed package upon which is marked the grade "A No. 1 Canadian," unless such fruit consists of well-grown specimens of one variety, of normal shape and not less than ninety per cent. in each package free from scab, worm holes bruises

and other defects, and properly packed and marked in a plain and indelible manner with the minimum size of the fruit in inches or fractions thereof across the core of the apples or pears as the case may be.

6. No person shall sell, offer, expose, or have in his possession for sale any apples or pears packed in a closed package upon which is marked the grade "No. 1 Canadian," unless such fruit consists of specimens of one variety, sound, of fairly uniform size, and not less than eighty per cent. in each package free from scab, worm holes, bruises and other defects, and properly packed and marked in a plain and indelible manner with the minimum size of the fruit in inches or fractions thereof, across the core of the apples or pears as the case may be.

8. No person shall sell, offer, expose, or have in his possession for sale any fruit packed in any package upon which is marked any designation of size, grade or variety which falsely represents such fruit; or in which the faced or shown end gives false representation of the contents of said package; and it shall be considered a false representation when more than 15 per cent. of such fruit are substantially smaller in size than, or inferior in grade to, or different in variety from the marks on such package, or from the faced or shown ends of such package.

9, 10, 11, to remain as at present.

12. Strike out 'apples or pears are,' and substitute 'fruit is.'

13, 14, 15, 16, 17, to remain as at present.

A clause to be added as follows,—the word "packer" when used in this act shall be construed as the person on whose behalf any fruit is packed.

The phrase "closed package," shall be construed as one in which the fruit is invisible and which cannot be readily opened without injury to the package.

In our next number we hope to give further extracts from the report of our meeting which we hope will be of especial interest to our readers.

THE CONSTRUCTION OF ROADS.

THE construction of park roads is like the construction of all other things largely a matter of local conditions. There are however, some principles common to all conditions which must be made factors in the work or the results will not be at all satisfactory. The character of the earth upon which road materials are to be laid largely controls the method of construction and the materials to be used. Sand, of course, is the best, but it should be properly underdrained or in wet springs there is likely to be so much water accum-

ulated in places that, as the frost breaks the bond of the road surfacing, the road will become wavy and the wheels will break through if much used. This is only likely to happen when sand is supported and surrounded with earth impervious to water. Clay is the worst material, but it is by no means to be feared if properly drained and the road surfacing is not thin. The underdraining of clay is not necessary. If provision be made for at once carrying off the water which reaches the surface of the clay under the road material the disturbance of

the road by frost will be as little as on foundations of other material.

The thickness of the road material depends entirely upon the traffic to which the road is to be subjected. The lightest of all roads in parks, some little turn outs to hitching places or the like, might be five inches in thickness if resting on confined sand and constructed of sound stone or good gravel. This thickness should never be less than seven inches on clay. The road material in the ordinary park road should not be less than nine inches in thickness after rolling. Not because that much material is required to hold up the traffic, but because the surface will probably be worn down at least two or three inches before it is resurfaced. At its thinnest it should be capable of holding up heavy sprinkling wagons and coaches or any vehicles which may come upon it.

A well built nine-inch road of good material is amply heavy for ordinary park uses. For boulevard roads the material should be somewhat thicker. If properly cared for in any boulevard twelve inches is ample. In some of the outer boulevards nine inches will be sufficient. The question might be asked why if a nine-inch road will hold up a traffic in the parks when frequently very heavy vehicles pass over it, is it necessary to have a heavier road in a boulevard? It is the matter of wear again. Take a busy avenue, for instance, in the busiest part, where 13,000 vehicles have frequently passed over the road in 24 hours and the traffic is always very heavy even in wet weather. The wear is, of course, great. Suppose the road to have gone two years without surfacing; nearly three inches is worn off the surface. Suppose the following winter to be a severe one on roads, that is to say a wet one, then if the road was nine inches thick to start with there would be perhaps only five or six inches of material remaining with its bond broken, utterly incapable of holding up the traffic. With a twenty-inch

road there would still be eight or nine inches of material, which would be sufficient.

The kind of material to use? There are several things to consider in determining this. Principally it must be durable and of two grades. The upper three inches should be material that will best resist abrasion, which means a hard, tough uniform granite or trap rock. The under six or nine inches as required may be any hard stone that will preserve its integrity when subjected to frost. The upper three inches should be stone broken into pieces closely approximating one and one-quarter inches in their largest dimensions, as nearly cubical as possible; the under layer into two and one-half inch pieces. The granite or trap rock as was said should be used for the upper three inches. For the much used boulevard drives this is almost imperative, but for the outer boulevards and the park roads a softer and less expensive material may be economically and satisfactorily substituted, limestone or good bank gravel.

For the roads in the park color of surface is a consideration. The glaring white surface of a limestone road is very painful during the bright days and at all times its great contrast with the surrounding dark greens is anything but pleasant or desirable. The sienna of the bank gravel is much better, but the gravel road is more difficult to keep clean and is much more liable to be muddy after the summer shower or if as frequently happens, the sprinkling is too heavy. The determination of this matter must be largely affected by the local conditions in each case as to the cost and materials found at hand. To darken the surface of limestone roads a dressing of crushed granite or trap rock, say one-half an inch thick, has been applied, but it is expensive because of the frequent renewal necessary to keep the color at all even. If it is thought necessary to darken the surface it would be economy in the end to make the upper three inches of the road of the

more expensive material to begin with. The result will certainly be more satisfactory as to maintenance ; for, of course, the harder material does not wear as rapidly, therefore does not have to be cleared as often, is not

as dusty in dry weather, nor as muddy in wet weather.

FRANK FOSTER, C. E.

Before American Park and Out-Door Association.

AWARDS OF MEDALS FOR CANADIAN FRUIT AT THE PARIS EXPOSITION.

ALL OUR provinces have a noble record of fruit exhibits at the Paris Exposition, and we shall await the full and complete report of the prizes awarded when the Commission has completed their labors.

In the meantime Mr. Robert Hamilton of Grenville, P. Q., who was at Paris during a great part of the season, sends on an incomplete list of our awards, from memory, explaining at the same time that he could give far more information only for the unfortunate loss of all his papers, photos, &c., on ship-board. Mr. Hamilton promises to give us several papers on French horticulture early next year.

The following is Mr. Hamilton's list :

Awards of Medals, &c., for Canadian fruit at the Paris Exposition, 1900.

Dates of the concours and awards :

June 27. Awards for Natural Fruit—Old Apples. A Gold Medal to each of the following : Dominion of Canada, British Columbia, Ontario, Quebec, Nova Scotia ; a Silver Medal to New Brunswick ; a Bronze Medal to Prince Edward Island.

July 11. Natural Fruit disallowed on this occasion. Fruit Preserved, Non Edible : a Gold Medal and Grand Prix to the Dominion of Canada ; a Gold Medal to each : British Columbia, Ontario, Quebec, and Nova Scotia. A Gold Medal to the North-West Territory of Canada. A Gold Medal to the Experimental Farms of Canada.

July 25. Natural Fruit, 1899. Awards to Fruit Growers' Associations : a Gold

Medal and Grand Prix to the Dominion of Canada ; a Gold Medal each to British Columbia, Ontario, Quebec, Nova Scotia. A Silver Medal to New Brunswick and a Bronze Medal to Prince Edward Island.

August 8. Natural Fruit, Old, 1899. Award to Local Fruit Growers' Associations. To Grimsby, Ont., Burlington, Ont., Montreal, Que., L'Islet, Que., Abbotsford, Que., Nova Scotia, and to British Columbia, a Gold Medal to each.

August 22. Natural Fruit, Old, 1899. Awards to Provinces : a Gold Medal each to British Columbia, Ontario, Quebec, Nova Scotia, New Brunswick ; a Silver Medal to Prince Edward Island.

September 5. Natural Fruit, Old, 1899. A Gold Medal was again awarded to each of the Provinces: British Columbia, Ontario, Quebec, Nova Scotia, New Brunswick.

September 22. Natural Fruit, New (a few old). The fruit arrived late, but a committee of the jury made the award on arrival of the fruit. A Gold Medal was awarded to Ontario, to Quebec, to Nova Scotia, and to Linus Woolverton ; a Silver Medal was awarded to Robt. Brodie, St. Henri, Montreal, and to J. W. Bigelow, Wolfville, N. S.

October 10. Natural Fruit, New, 1900, and also of 1899. A Gold Medal was again awarded the Provinces of Ontario, Quebec, and Nova Scotia.

October 31. New Fruit, 1900. Other awards were made but I had left before this date.

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE
ONTARIO AGRICULTURAL COLLEGE.

1. Crude Petroleum Experiments against the San Jose Scale.

Prof. J. B. Smith, of New Jersey, has recently published a bulletin (number 146), dealing with the action of crude petroleum as insecticide. The results secured by Dr. Smith are interesting, and should be known to all the fruit-growers of the sections infested by the San Jose Scale, for his successes and failures depend largely on the quality of the crude petroleum used and on the mode of application.

Crude petroleum varies widely in its composition, and has no definite meaning in the trade. Crude petroleum as it comes from the well, Dr. Smith says, does comparatively little injury to vegetation unless the application is very excessive or long continued, but crude oil composed of mixed crude and distillate is decidedly harmful. For orchard spraying the crude petroleum should have a specific gravity of 43° on the Beaume oil scale at a temperature of and any oil which registers less should not be used, for injury will be done to the trees. If these conclusions are correct, then Dr. Smith has done a real service to fruit-growers who purpose using the crude oil against the scale.

The Bulletin also records cases of decided injury to trees by the application of crude petroleum, but such results are accounted for by the use of oil registering lower than 43 degrees.

Regarding the action of crude oil, Dr. Smith says that the tree should be dry when the oil is applied, though it may be cloudy and rain immediately thereafter. "The best time to spray peach trees is while the buds are fully dormant, not when they are about to waken into life and growth. Apple buds are very well protected, and are rarely hurt unless the oil is in excessive quantity."

Spraying is best done with a vermorel nozzle adjusted so as to give a fine mist, and no more oil should be used than sufficient to moisten the surface thoroughly. Half a pint will be enough for an average size peach tree. The oil may be applied undiluted, or in a mechanical mixture with water by means of an emulsion sprayer. Dr. Smith "prefers the undiluted form because it is then known exactly what has been done." Spraying should be done on mild days, for the oil when cold "becomes less fluid, is not so readily sprayed, does not penetrate well and is less effective."

2. Recent Books on Mushrooms and Toadstools.

During the past few years great activity has been shown in the collection and study of mushrooms and toadstools, usually called fleshy fungi. As a result of some of these studies three important works have been published lately all of which will tend greatly to a better and more satisfactory knowledge of these very interesting plant forms.

The first work which deserves mention is Underwood's *Moulds, Mildews, and Mushrooms*, a small book published by Henry Holt & Co., New York, 1899. The fleshy fungi are treated concisely, and tables are given for the purpose of identification of the edible, suspicious and poisonous species. Illustrations are absent, a feature of decided demerit. The book serves as a good introduction to fungi in general, and to fleshy forms in particular.

The next work McIlvaine's *One Thousand American Fungi*, published by Bowen-Merrill, the present year, 1900, is a more pretentious book, containing beautiful illustrations of the common fleshy forms, and carefully prepared botanical descriptions of the various species. Several pages are devoted to the

best modes of selecting and cooking the edible forms. The volume is a bulky one of 704 pages, but in spite of its size may be regarded as one of the best books of the kind. The amateur is seldom at a loss to identify his specimens with its aid. The book should be in every public library in the province.

The latest publication dealing with Fleshy Fungi is one by Professor Atkinson of Cornell University, entitled *Mushrooms Edible, Poisonous, etc.* The publishers are Andrews & Church, Ithaca, N. Y. The price, \$3.00, is within the range of all enthusiastic amateurs and is specially low when one considers the admirable illustrations of over 200 photographs.

The writer had the pleasure of attending Professor Atkinson's class in Fleshy Fungi, the past summer, and can therefore, speak candidly with regard to the very extensive knowledge possessed by the author on these plants. The photographs were made with

extreme care from fresh specimens, and on account of the great care employed they often bring out individual, specific or generic characters, better than the common colored illustrations.

Besides descriptions of the common forms, there are chapters on the "Collection and Preservation of the Fleshy Fungi," "Receipts for Cooking Mushrooms," by Mrs. Rorer, "Chemistry and Toxicology of the Fungi," by J. F. Clark, "Analytical Keys," and a full "index to generic and species described."

This work of Professor Atkinson's will, the writer is sure, be highly appreciated by every lover of mushrooms and toadstools, for it is a book of convenient size, dealing with forms which are found in Ontario, and is thoroughly reliable, coming as it does from an acknowledged authority.

W. LOCHHEAD.

Ontario Agricultural College,
Guelph, Dec., 1, 1900.

A SUCCESSFUL SHIPMENT.—"The announcement that Canadian grapes have been sold at Manchester will meet with approval from a large circle of buyers in that centre," says the London Fruit Grower. "It is pretty clear that this market has been chosen for one or two reasons. In the first place, it is just the spot for distributing large quantities of cheap grapes to the industrial populations in the Midlands, who are large consumers of fruit, and secondly, because the Canadian grapes can be sent into Manchester by the ship canal. From all accounts these grapes have come to hand in perfect condition. The fruit is of a good size, the

berries are black and carry a fair amount of bloom, and the flavor of the fruit is excellent. When such a shipment as 12,844 pounds of fresh grapes can be sent all the way from Canada, and be put upon the English markets in perfectly fresh condition, it is clear that the system of transit has been brought to a pretty perfect condition. Certainly the promoters of this industry are to be congratulated upon the success that has been assured to these fruits. They have been packed in fancy little packages, such packages as must commend them to the retail trade."



TIMELY TOPICS FOR THE AMATEUR.—XI.

IN the issue of the journal for December, 1900, several suggestions were offered that I considered would, if adopted by our horticultural societies, have a tendency to increase the interest, more especially of our young people, in the culture and care of plants and flowers.

This being the initial number of the "Horticulturist," not only for a new year, but also for a new century, and as there is very little routine work to occupy the attention of our readers in the flower garden or on the lawn during the winter season, the time is I think very opportune to offer a few suggestions more particularly regarding floral exhibits, that may perhaps be of interest to readers of the journal.

The schedules or prize lists of exhibits of plants and flowers, held ten or twelve years ago, were almost without exception compiled and arranged to meet the requirements of professional and commercial plant and flower growers only. Even at the present time the prize lists of most of the large industrial shows, as well as the smaller township shows, that generally include an exhibit of plants and flowers, often entirely ignore the amateur plant grower; making no distinction between the professional and amateur in this respect.

This method is manifestly unfair to the amateur, who has perhaps a small collection of window and garden plants, and who is often deterred from exhibiting these from the fact that they are almost certain to be placed in competition with products that have perhaps been cultivated in a greenhouse, or that have had professional skill and care bestowed on their culture. With the rapid advance and more general practice of floriculture, it has become necessary to remedy this unsatisfactory state of affairs, and I feel sure that it is only necessary to call the attention of our readers to this matter, especially those who take an interest in industrial exhibitions, so that it can be to some extent remedied. Our affiliated horticultural societies have in some instances very wisely adopted the plan of a separate class for amateurs and professionals, and have still further sub-divided the amateur class of exhibitors, so as to distinguish between those possessing a greenhouse, and those who have not the advantage of this useful adjunct to floriculture. The late issuing of the schedule also often proves a great drawback to the success of an exhibit, giving very little time to prepare the plants, etc., necessary to comply with its conditions. In compiling the schedule, opportunity

should be given for as many exhibits of individual varieties of plants as possible, as this gives every one interested an opportunity to contribute something to the exhibit. The idea of interesting all classes of our people in the several branches of horticulture, and more especially floriculture, being one of the main objects of our horticultural societies, the arranging of the schedule or entry list with this end in view, will help very materially in securing a thoroughly complete and representative exhibit.

A paper on "How to make our Exhibitions More Popular" might be compiled and read by some member at a winter meetings. The paper, besides introducing perhaps some new features, would certainly form the basis for a discussion that would probably bring out many strong points of detail matter that might contribute greatly to the success of an exhibit.

As an illustration however, one exception to this almost general rule may be mentioned, viz., that of the exhibit of plants and flowers shown recently at the Southern Fair, Brantford. The schedule for this section of the show, was a most comprehensive one, the amateur and professional classes being quite distinct the one from the other, and both being well represented. The lists for each class were very similar, with the exception that the amateur list invited more exhibits of individual specimen plants; an additional feature of this class being that of prizes for window boxes, a commendable feature to introduce in a schedule or prize list. This system has been in operation for two years, possibly longer, and having had the honor of awarding the prizes on the two occasions quoted, I feel justified in mentioning this as an illustration, for the exhibit in both classes were of a very high order, and would do credit to a city double the size of the city of Brantford.

The remarks made in the December issue

of the journal, regarding the distribution of plants to scholars might be still further commented on. There is nothing to prevent this plan of distributing plants, etc., to the senior scholars in our township schools as well as to those in town or city schools. Many of our readers who are residing outside the scope of influence of an horticultural society, but who are interested in floriculture, and are perhaps trustees of a township school, or interested in the nearest agricultural show, might take up this matter, and thereby not only enhance and encourage the love of floriculture amongst our young people, but also help to brighten up the surroundings of many a home, as well as to furnish an exhibit that would prove an interesting and attractive feature of the annual autumn exhibition of the township or village. The distribution need not necessarily be of plants, as seeds or bulbs could be distributed early in the season, so that the flowers from them could be procured for exhibition at the time required. The amount of labor and the expense necessary to carry this plan into operation would be very small, and would be more than compensated for by the pleasure that would be derived in the cultivation of the seeds and plants, and the interest they would excite both in old and young people wherever they were exhibited.

For the purpose mentioned there is no better plant than the ever popular geranium, as it could be cultivated very easily. Some remarks regarding the culture of this plant have already appeared in this journal that would give sufficient information for the above purpose, the plants might however be allowed to come into flower a little earlier than advised in the article referred to, so that they would be well developed for the date of the exhibition. The varieties of the flower seeds, if these were distributed, might consist of a small packet of mignonette, asters, cosmos, zinnias, marigolds, and larkspurs. These

could all be had in flower during September and October, and do not require any great skill in cultivation. The best kind of bulbs for fall flowering for this purpose, would be the gladiolus. All the plants, seeds, etc., should be as nearly alike as possible, so that there would be no cause for complaint in that respect. A few simple directions as to how to sow the seed and plant the bulbs, could easily be given at the time of the distribution.


The first day of May (May-Day) would be a good time to make the distribution, as it is not only about the right season for sowing flower seeds, etc., but it would probably revive and perpetuate in the memory of many of our readers of mature age, the pleasing floral and festive scenes of an old-fashioned May-Day celebration, that perhaps they may have taken part in in the old land in days gone by. These remarks may be thought to be too sentimental in an article of this kind in this practical, go-ahead

age; but sentimental though it may be, there is a magnetic influence that prevades these and similar old associations, that has perhaps been more instrumental than we give them credit for, in causing the recent outburst of patriotism from Britain's colonies, and that has startled the old-world, and appraised it of the fact that the children of the motherland the world over, are prepared to stand by her, and by each other, in the time of difficulty and trouble. And none of us are able to estimate the good effect the encouragement of the ennobling pursuit of the culture and love for the many beautiful plants and flowers to be found in the floral world, and the influence they may have in moulding the character and principles of our children, so that they will be able to look back in years to come at the many happy hours spent in these and other pleasing pursuits, when perhaps they are far away from the scenes of their childhood.

Hamilton.

HORTUS.

CACTUS LORE.

UR Canadian winter being now upon us, the most of the Cacti family are having their season of rest, and it is during this resting season that care must be taken to allow these odd plants their natural treatment. In their native climate this resting season means a long drought, and at such times the plant shrinks into itself, and presents a half dead appearance. The spiny, globular sorts, look to be still more closely covered with their porcupine-like protection, and give a very decided warning that growth has ceased for that season. To the inexperienced they may look about dead, and a mistaken idea of forcing them back to their freshness and

growing condition, will be usually followed by the loss of the plant entirely.

The best treatment is to allow the rest nature demands, by withholding water almost entirely. Set the plants, if convenient, in a dry cool place, where they will have light. They will winter in a dark room, but the bloom will be much less in the spring, than if light has been supplied to them while resting.

Another advantage of the light corner or window, is that when the sun commences to get strong in the spring, and growth begins, it will not be puny and white, but will be the natural growth of the plant, improving the specimen instead of detracting from its

value. Then, when there is good light, growth can readily be seen and water gradually given until in a surprisingly short time the plant has swelled to its former size, assumed a fine healthy appearance and a vigorous growth set in.

or even at any time if drainage is not perfect.

But there are exceptions to this rule, for some cacti are very fine winter bloomers. Among these are the *Epiphyllum Ruspelianum* (crab cactus), called by some Christ-



FIG. 1984. PHYLLOCACTUS.

This is when blooming commences, and what cactus fancier is not proud to display to a friend the beautiful flowers, as if by magic from the sides, ridges or centers of of these the oddest plants in nature?

The penalty for disregarding the plants' demand for rest is very suddenly discovered some day, and the surprise is great. The centre of the plant will send out a new and splendid appearance of young growth, and all will look well for a time. Then it will take a change of color, perhaps slight, and an examination will reveal the fact that there is nothing left but a shell, covering a rotten mass of jelly. This is what so often follows when too much water is given at this season,

mas cactus, also *Phyllocactus Anguliger*, one of the flat leaved varieties which is a grand winter bloomer, bearing on its heavy stems, magnificent white flowers which have the advantage over so many other white flowered varieties, of being day bloomers, and lasting several days. The crab cactus is well known and its fine drooping habit and generous quantity of crimson flowers, open at Christmas time, are much appreciated. The *Phyllocactus Anguliger* is not so generally known, but where its beauties are once shown, it is ever after, a much valued specimen in any collection.

J. H. CALLENDER.

Woodstock, Ont.

GREENHOUSE AND WINDOW.

THE increasing power of the sun's rays as the end of January approaches will brighten up the outlook for a better supply of blossom than has existed during the early part of the winter. From now until spring there should be a succession of the showy, welcome, and one might almost say "anticipating blossoms" of the natural spring flowering bulbs, such as daffodils, narcissi, hyacinths, etc., as these always seem by their bright attractive blossoms to bring prospective spring nearer to us than it would otherwise seem to be without them. Bulbs are indispensable for greenhouse and window effect in winter. Stevias, Eupatoriums, Epiphyllum truncatum (lobster cactus), and similar plants will also make a variety of blossom at this season of the year. The last named plant, of which there are several varieties, makes a grand addition to a few greenhouse or window plants in winter. The Epiphyllums succeed best when grafted on the Pereskia stock. The grafting process is not a difficult operation to accomplish, the best time to secure cuttings or growth with which to propagate being probably after the plants are out of flower in spring. A small piece of the cactus can be broken off at a joint, inserted in a cleft made in the stock, and secured there by a sharp piece of stick being run through the stock and graft. If the atmosphere is at all moist, nothing further will be needed to ensure success. Tying with a piece of string will answer the same purpose as the small pointed piece of stick, to secure the graft in position. Cuttings of these plants will also root readily in sand, but are better suited to furnish hanging pots, brackets, etc., than for growing in the ordinary way. A light sandy loam, not very rich, with plenty of drainage, and not too much water at the roots, are conditions that

suit Epiphyllums the best. The bright colored, odd looking flowers of these plants, protruding as they do from the extreme tips of their peculiar flat, crenate growth, give them a unique appearance, and making a plant or two of them a striking feature amongst a general collection of greenhouse plants. In summer plants of the Epiphyllum can be stood outside in partial shade until early autumn, and require very little care and attention. The Epiphyllums make good plants also for the window. Calla lilies will require plenty of water at the roots and an occasional syringing of the foliage. These plants are very subject to aphids or green fly, and sponging the parts affected with weak tobacco water, or a light fumigation from burning damp tobacco stems, will keep down these little pests that multiply so fast on greenhouse plants generally.

Amaryllis bulbs that have been dormant or semi-dormant during winter, will soon show signs of active growth. These should be potted at once on showing signs of growth. A fairly rich loamy soil, and about an inch of broken pots for drainage, suits most of the numerous varieties and types of the Amaryllis family.

Late flowering cinerarias must be repotted into large pots before the pots they are in are filled with roots. The earlier sown Cinerarias will soon be showing flower, and a little weak liquid cow manure once a week will help to produce large flowers. Overhead syringing, almost daily, helps these plants and also assists in keeping down green fly; the latter are very partial to cinerarias. Tepid, clear water, should be used for the latter purpose.

All autumn struck geranium cuttings should be potted into small pots. Any old plants of these that were cut back, and have been kept in sand, can be potted into as

small pots as the roots will nicely go into. Over potting into too large pots in winter time is a mistake, especially for plants just starting root and top growth. Use nearly half sand mixed with the loam, for these and the cuttings before mentioned. In fact these remarks regarding newly rooted, or newly started plants, will apply to almost every class and type of plant, to a greater or less extent.

Cyclamen bulbs will soon be showing flowering buds, and will require plenty of water at the roots at this period. A little liquid manure once or twice a week will help to produce large flowers, and intensify their color, as well as the pretty markings of the foliage, so attractive a feature of the cyclamen. A cool temperature and an occasional syringing is necessary to have the best results possible with cyclamens.

Roses should be syringed with tepid water two or three times a week if at all practicable to do so. Sprinkling the hot-water pipes on very cold nights, when there is a good circulation of heat in them, will raise a cloud of vapor that will serve the double purpose of making the insidious little red spider very uncomfortable, as well as helping to seal up any open joints there may be in the glass roof. Steaming the house is a good plan on cold, windy nights, but must not be attempted unless the temperature of the house can be kept at least above 50° during the night.

Cuttings of lobelia, double alyssum, cupheas, and similar plants required for hanging baskets, vases, etc., should be taken now. This will give them a chance to make nice plants by the time they are required in spring. Old plants of *festuca glauca* and *Isolepis gracilis*, can be cut into small sections and repotted into sandy soil in small pots. These grass-like plants are pretty and useful for hanging baskets, window boxes, etc. Ventilate the greenhouse or conservatory very cautiously, if it is done

at all, and be sure and close the ventilators early in the day.

WINDOW PLANTS.—The principal plants in flower in the window will probably be a plant or two of *begonia incarnata*, calla lilies, and some pots of early flowering bulbs, Roman hyacinths, with some of the earlier flowering varieties of narcissi. Dotted here and there, these will make an attractive window display, placed amongst a few ferns



FIG. 1985. GERANIUM, "PETER HENDERSON."

and other plants, whose foliage alone is acceptable at this season of the year. A few trusses of geranium blossom will also be seen, if the window has a sunny aspect, and the directions given in the May number of journal regarding the culture of geraniums during the summer for the express purpose of producing flower in winter, have been followed up. The accompanying photo of a plant (taken in October) shows the result of the summer culture as before mentioned.

The plant shown is one of the semi-double varieties, and is named after the late eminent plant-grower, "Peter Henderson,"



FIG. 1986. FLOWERS ON SIDEBOARD.

one of the most enthusiastic and energetic florists of this continent up to the time of his demise a few years since. The flower of the geranium noticed is of a bright cerise-scarlet color. Its robust habit of growth, together with its free-flowering propensities, and its adaptability as a bedding variety in summer, or as a forcing variety in winter, have tended to make it a general favorite, especially with amateurs. There are several more varieties of geraniums of various colors, suited particularly for winter flowering, that were noticed in the article referred to previously, besides others of more recent introduction that can be easily obtained.

Plants are very susceptible to cold draughts of zero weather, and these must be prevented from striking directly on the plants by placing sheets of newspaper, or something similar, between them and the window on very cold nights.

If the plants are standing on a table it is easy to remove table and all a foot or two into the room from the window on very cold nights. This will often prevent a collection of window plants from being frozen and irretrievably ruined.

I have had handed to me a photo of a

small collection of plants that are evidently ready for an extra severe visit of winter weather. They also make a very pretty floral display on the sideboard for evening visitors to admire. It is to be hoped the plants as shown were removed back to the window as soon as possible, so as to give them the light and sun so necessary for the well-being of plant life in general. Those who succeed best with window-plants are those who endeavor to give them as nearly as possible the same surroundings that are supplied them naturally in their native haunts.

In the centre of the photograph at the back is seen a fine plant of *begonia sanguinea* with the last of several fine cymes of its delicate pale pink blossoms still showing. This is one of the most satisfactory varieties of the many numerous and beautiful types of begonias, specially adapted for window culture. Its thick heavy leaves, the upper surface of which is of a bright glossy olive green color, while the underneath side of the leaf is of a bright blood-red color,—hence its specific name "*sanguinea*"—seem able to withstand the dry heated atmosphere of a dwelling house, better perhaps than any of the begonia family, although there are several kinds, such as *B. manicata* and *B. manicata aurea*, that are good varieties for house or window (besides others of more recent introduction).

The cyclamen in the centre, and the pot of Von Sion and Orange Phoenix narcissi on either side, and the small plants at the extreme ends of the side-board had a very pretty effect altogether when the room was lighted up for the evening. A hanging pot or two of tradescantia or a trailing plant of German ivy or smilax would have completed a very pretty picture.

With increased fire-heat, insect pests will develop quickly. Green fly and red spider are the foes most to be dreaded. Sponging

as recommended for greenhouse plants is probably the safest method of disposing of green fly on window plants.

Spraying and syringing the foliage, especially the underneath side, as often as possible, at least two or three times a week, is not only the safest remedy, but the best preventive of the destructive attacks of the dry-air pest, viz., the red spider. Keep as moist an atmosphere as possible around the plants, and spray or syringe the foliage on fine sunny days. Ventilate the rooms also on fine warm days when possible. This should be done by lowering the top sash of the window ; this avoids chilling the plants. The bottom sash should be raised for ven-

tilation only when the thermometer registers several degrees above freezing, 45° to 50° being safe figures to act on, if the wind is not cold and biting. Water the plants thoroughly at the roots, but only as often as it is needed. The latter point can only be determined by close observation of the needs and requirements of each individual plant. Bulbs while forming flower buds and when in flower require plenty of water, as well as soft-wooded plants, such as geraniums, stevias, spireas, etc. Freesias require plenty of water for a time after they have done flowering, and even a little liquid manure to help develop the new bulbs for next season.

Hamilton.

HORTUS.

GLADIOLI AFTER FLOWERING.—I watch my Gladiolus beds very carefully, and as some sorts are earlier than others, I take them up as they ripen-off, and put them into the house. In the back kitchen there is a copper close to a patent kitchener, where there is considerable heat, and there I place them. They remain for a couple of weeks until they are quite dry, when I put them in paper bags and lay them by. That they will bear some considerable drying-off I have proved, for a small box of mixtures was forgotten for some weeks, and when taken out I did not think they were good for much. I, however, planted them in an out-of-the-way place under the shade of trees, and there they have grown and bloomed most vigorously. The Gladiolus disease seems in some way to be connected with climatic influences, and results, probably, from exceptional causes. These may be removed, and the bulb itself acquire more

hardiness. Hollyhock growers will remember that some years ago the same thing took place in that plant. Collections were cut up, and the attempt to grow the flowers pronounced hopeless. It, however, after some years of much heart-burning to growers, wore itself out, and the plant is now being grown again. So with the Gladiolus, I believe. Those who have seen a collection of them as cut blooms will desire to see them extensively grown. As cut flowers they have few rivals. They bloom so well in water, daily expanding their flowers, and are so vivid and varied in their color, that they must be great favorites. My ideas on their cultivation would be, Dry the roots well, keep them in a cool place to prevent their growing too early, manure highly in the autumn, again give a slight coating in spring, and do not plant too early.—*Garden Work.*





The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearsages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

ERRATA. The word "successful" on page 526, December number, should read "succession," and "Fuchsia" in second column, page 527, should read "Freesias."

BRECKON'S SEEDLING.—Mr. R. Breckon, 956 Dundas St., Toronto, sends us two beautiful apples, with the following note:—

SIR:—"I send you two apples that I cannot name, and I have had them before two of the best judges in Toronto and they cannot name them. I would be very thankful if you would name them for me.

The two were grown by an old man who is now dead. He was very fond of growing trees from the seed of all the best apples that he could get, and also fond of grafting. This tree is about 10 or 12 years old by the appearance of it, and it grows upright like the Spy tree. The tree is in an orchard, or at least on one side of the orchard, where there are only Spy and Blenheim orange trees growing.

The tree bears a good heavy crop every year, and the man told me that he keeps them until the middle of May and they retain the flavour better than the Spy. The sample that I sent you has been in a ❧arm room in my house for over three weeks, so it

does not give you a chance to judge its keeping qualities."

This apple is surely a seedling, but one well deserving farther attention from our Committee. Form oblate, $2\frac{3}{8} \times 3\frac{1}{4}$ inches in diameter; color, light yellow, beautifully shaded and striped with bright red, with numerous obscure yellowish dots; stem, $\frac{3}{8}$, very short and stout, in a deep cavity, and calyx nearly closed in a moderately deep wrinkled cavity; flesh fine grained, moderately juicy, of excellent quality. Season probably January or March.

APPLES have been advancing in price almost constantly, proving the correctness of our views of the crop and the markets as expressed in previous numbers. Many predicted a glut like that of 1896, but instead prices for No. 1 fruit have been better than

usual. Mr. J. M. Shuttleworth, of Brantford, sends us the following cables of Dec. 12th:—Messrs. Simons, Shuttleworth & Co., Liverpool, cable:—There is a steady demand for good sound fruit. The market is active and prices have advanced from our last quotations.

GALLING TO OUR YANKEE COUSINS.—The advancement we in Ontario are making in the way of extending our fruit markets, especially since the Provincial Department of Agriculture has moved in the matter, and the fruit is landing in Great Britain in such admirable condition, is a bitter pill for our Yankee cousins, who may never move in such an enterprise except at each man's own private risk and loss. The following extract from Cold Storage proves our statement:—

It must be galling to patriotic Americans who gloat over the vast strides we have made for foreign trade to learn that we are playing second fiddle to Canada in the matter of exports of perishable fruit products. It certainly moves us to wrath. That there is no sense in such a situation is apparent, except that Canadians are beating us in the game of progressiveness. That exception is just doing the trick. If our producers must get along without any governmental aid they ought to be the first ones to interest their fellow partners in the trade, and start a concerted movement for pushing exports of perishable products. Canada now sends more butter, cheese and eggs abroad than this vast Republic, and its fruit business is rapidly overhauling ours.

With less than one-quarter of our territory, and with a vastly larger percentage against that country in the matter of production, Canada has managed by ceaseless energy, to approach and pass us in sending abroad those products which this country is paramount in. Here is something for Americans to ponder over. Refrigeration is doing for Canada what it has done for Australia and New Zealand, and what it ought to do for this country. We know as much about the science as Canadians, but are not applying it to develop foreign business. We simply seem satisfied to work within our shell. Here is one sort of expansion that will meet with approval on all sides.

THE NOVEMBER FRUIT SHIPMENT.—On the 18th of November, the "Trader" sailed from Montreal, carrying a shipment of Grapes, Pears, Quinces and Apples, which we had forwarded from Grimsby a few

days previously. A letter has just been received from Mr. Peter Byrne, Government Agent, at Liverpool, dated Dec. 8th, in which he says:

The last shipment by the "Manchester Trader," which left Quebec on the 19th November, was discharged on the dock at Manchester on the afternoon of the 5th inst. I inspected it immediately on being landed and found the apples, pears and quinces all sound. But the grapes, though fairly dry and sound were in several instances wet and decayed. Since then I learn that they deteriorated after being landed and I fear a heavy loss on them was inevitable. The cold storage arrangements seemed to have been all right, but the fruit must have been too long picked at the time of shipment. The public here are slow to take up with anything new, but a good step has been taken in impressing them favorably with our grapes. I have had three exhibits at Liverpool, and a great many people have tasted them and pronounced them excellent.

Messrs. Potter & Co. write under the same date: The "Trader" has arrived and we hasten to inform you of the condition of the fruit sent by her. We understand that while she was loading at Montreal, the temperature was 15° F., and from the engineer's report that it took six days for the chamber to reach 39° F., no brine being pumped in the meantime, we judge that the fruit had been pretty well frozen. The result is that the pears rapidly rotted, almost immediately they were discharged they went off in color, and we fear it will be difficult to dispose of them at anything like a price. Of course you cannot expect them to stand such cold, and we should say it would not be wise to try to ship them so late another time.

This emphasises what we have all along advocated that in order to have perfect success, we must have weekly steamers. Last season we had only the space on one steamer engaged, and that after October 5th, it was November 18th before the next sailing, and fruit harvested in October had to be kept all the time waiting.

Let us have a steamer every week properly fitted as the "Trader" is, and this kind of a difficulty will not again occur. This kind of accommodation ought to be provided for us by the Government, and if our local associations would express their wishes either by letter or resolution to the Hon. John Dryden, we have no doubt he will make such provision as shall enable any company of growers willing to make up weekly shipments, with railway and steamship accommodation for the same.

QUESTION DRAWER.

Salt for Asparagus.

1198. SIR,—What amount of salt should be applied per square rod to an Asparagus bed, or what is the greatest amount which can be applied without injury to the plants. Is it possible to apply enough to keep down weeds without injuring the Asparagus.

GEORGE WOOD.

Erasmus, Ont.

Salt may be applied quite heavily to an asparagus bed without injury to the asparagus, indeed heavily enough to keep down weeds and grass. Some advise sowing one bushel to the square rod, as a fertilizer; but whether it has other than a mechanical effect upon plant growth is a disputed question. In addition to the salt we would recommend an annual top dressing of Nitrate of Soda, say two hundred pounds per acre, in March or April, as a specific for the encouragement of plant growth.

Apples for Ottawa Valley.

1199. I would like very much to have your advice as to which of the following varieties of apples you would consider the most profitable to plant:—Ontario, Northern Spy or Canada Red. I am planting an apple orchard in the Ottawa Valley and have set out some McMahon's White to be top grafted with either one or two of the above sorts. The Canada Red is proving quite hardy in that section, but it is not a strong grower nor a heavy bearer. Would top working it on a strong grower overcome these defects? Is the Ontario of as good color as the Spy? Does the Canada Red sell as well as the N. Spy? I have never seen market quotations of this sort.

I. F. MORROW.

Kelton, Ont.

In our opinion the Spy is the best apple of the three. It has a name in the Chicago market, and Canadian Spys are in considerable demand; and it is constantly rising in favor in the English market.

The Ontario so much resembles the Spy that it might sell as a substitute for it, and it has the advantage of being an earlier and more regular bearer. On this account, if planting young trees, we would choose the

Ontario as the one most certain of giving returns within the first fifteen or twenty years.

But for the Ottawa Valley we question whether either one is hardy enough. If our correspondent can satisfy himself in this point, he cannot go wrong with either variety.

Canada Red is not productive enough, as a rule, to be selected for a commercial orchard, although it is a fine color, and a good packer. Very often too, it is under-size, and these days no apple is wanted under 2½ inches in diameter.

1200. In an article on "The Boston Fern" which appeared in the Horticulturist a short time ago, it stated that for treating scale on the leaves, washing was the best cure. Would you recommend anything but clear water to do this or is there any preparation which would be best to use? Kindly answer the above and you will confer a favor on,

F. DAVEY DIAMOND.

Answer by Mr. W Hunt, Hamilton.

The safest and most effectual method for the removal of "scale" from ferns and plants of a similar delicate texture, is to wash them with water in which a very small quantity of common soap has been dissolved. Apply the soapy water carefully with a small piece of sponge. By rubbing slightly, the scale can be removed without injury to the plant. Rinse or syringe the plant with clear water at once, so as to prevent any of the soapy water from clinging to the foliage. Whale oil soap and similar preparations are dangerous to use on ferns for the removal of scale.

1201. What is the best and most convenient fertilizer for a lawn? When and in what quantity should it be applied?

GEORGE WOOD.

Erasmus.

Clean stable manure, fine and rotten, is

about the best all around fertilizer for the lawn, and the effect in the rich dark green growth is very soon observable. If this is not convenient, excellent results may be obtained by sowing the lawn (1) with wood ashes, at the rate of from 25 to 50 bushels to the acre, to furnish potash, an important element in the formation of the stems and

woody portions of vegetation; (2) with nitrate of soda, say 75 lbs. to the acre, to promote vigorous growth; (3) with bone meal, about 200 lbs. per acre, which aids the nutrition of the plant.

The best time to apply these fertilizers is in May when the growth is starting.

Open Letters.

The Edible Fungi.

SIR,—Referring to the very valuable contribution of Dr. Hare in your November issue at page 454 on (let us say) "Edible Fungi," I hope the learned Dr. will give us some practical hints whereby we may distinguish the poisonous varieties.

It would be very useful if some one competent would give some hints as to how mushrooms may be *naturally* or *quasi* naturally produced in fields, etc. We find them on old pasture fields and places where cattle, etc., have been *salted*. In this neighborhood we have had phenomenal crops even where roots were being grown on land originally known as black ash and water elm "swails," first heavily *salted*.

Is there any connection between the *salt* and the *mushrooms*, or between the *salt* on that *particular class of land and mushrooms*? The matter is worth exploiting.

W.

Birds and Berries.

SIR:—"As you have kindly helped me very much by your answers to my questions, I take the liberty to ask another, viz:—"If you have much trouble in growing Black Cap Raspberries from the birds eating them." Through the kindness of the Society, I have some very fine kinds and bought one or two more. I did not grow any for some time after

starting gardening here, thinking the winters too cold, but tried those you sent out and the first year or two after they began to bear I had very good crops, but the rust troubled me, and when I had overcome that, the birds stripped them off, although the red raspberries close by were hardly troubled. Do the birds make a dead set on yours? I wish to note my experience with the Codling moth. As my garden is small, I only grow one apple tree, which is large enough to bear 2 to 3 barrels of fruit every other year. It is a winter variety without a name, large greenish with red markings, a good deal like a spy. Four or five years ago it was infested with the worm so as to be almost worthless, and I then made a point to destroy or feed all apples that dropped; also tied a piece of sacking around trunk, and destroying the larvæ every two or three weeks, and this year I had scarcely a wormy apple in the whole lot, not more than were sprayed. I dug the ground late in the fall, as I grow black currants near it. I have a neighbor who has several trees and takes no particular care of them and they are badly affected.

I noted in the December number of Horticulturist, page 509, you speak in great praise of the high bush cranberry, and while speaking of it so highly, omit to mention one great advantage it possesses, viz; that the berries make an excellent jelly, which with meats we find to be generally preferred to any other.

Listowel, Ont,

A. J. COLLINS.

OUR BOOK TABLE.

CATALOGUE OF FRUIT TREES, under test at Experimental Farm at Agassiz, B. C., Ottawa, 1900.

This is bulletin 3 second series, which is to include such as may be too scientific and technical for the common reader.

This catalogue, however, is one that is of interest to every fruit dealer in the Dominion, containing as it does such an extended list of fruits, largely descriptive. It includes 1,217 varieties of apples, 36

crabs, 557 pears, 311 plums, 154 cherries, 213 peaches, 53 apricots, 25 nectarines, 12 quince, 7 medlar and 6 mulberry trees.

REPORTS, Experimental Farm, for 1899. The work done at the Central Experimental Farm, Ottawa, does great credit to the Director, Dr. Wm. Saunders, and his able staff. Copies of the Report may be had on application.

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The plants I supply to customers cannot be excelled in United States or Canada.

They are grown with every possible care to avoid mixing and are shipped in open boxes packed in damp moss.

Their condition on arrival is guaranteed. Don't order your plants till you have seen my catalogue and prices. A postal all that is necessary.

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Box 3, Cummings Bridge, "near Ottawa," Ontario.



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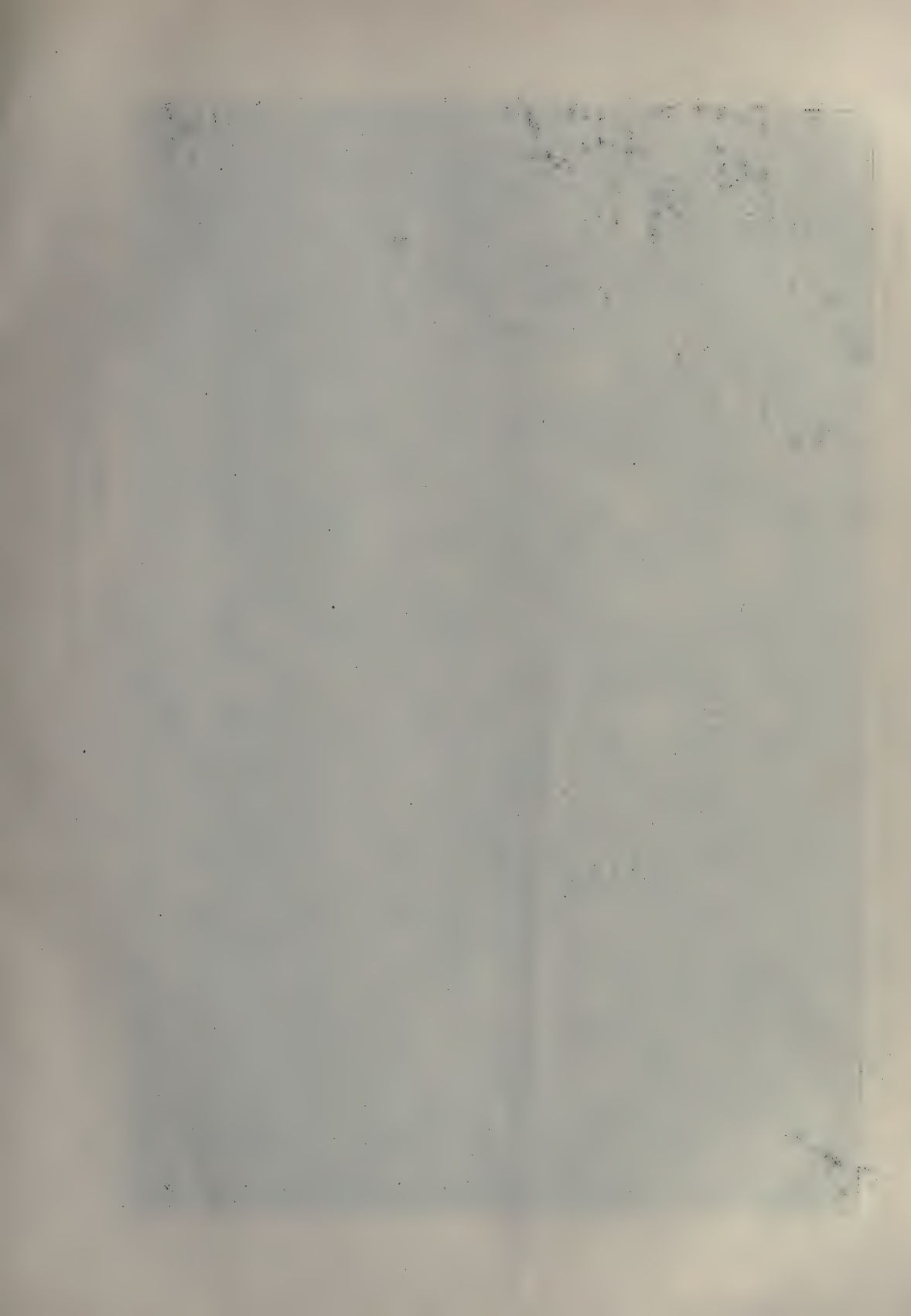
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Every Fruit Grower Should Read M. R. Kellogg's New Book Entitled.

GREAT CROPS OF SMALL FRUIT AND HOW TO GROW THEM.

The author has grown the largest crops of fancy fruit ever produced on an acre. In his experimental grounds are **single plants which yield over FOUR QUARTS** each of fine large berries. His customers have done as well. This has been accomplished by **SCIENTIFICALLY BREEDING up plants** to a high fruiting vigor so they throw their energies to the development of fruit instead of useless runners. **The profit comes from a big crop of big berries** that sells at sight to regular customers. This book tells you about how it is done. **THE CHEAPEST PLANT** is the one that will give you the best fruit and most of it. You can't afford to play **second fiddle** on the market by using scrub plants. The only stock of scientifically grown thoroughbred plants in the country for spring planting. Send your address **at once** and get a copy of this book and a revised edition for three years **FREE**. Address **R. M. KELLOGG, Three Rivers, Mich.**



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Prof. Macoun.

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A. H. Pettit.



A. M. Smith.

Thos. Bengough.

W. M. Orr.

L. Woolverton.

G. C. Caston.

Prof. Hutt.

W. A. Whitney.

M. Pettit.

FIG. 1987. OFFICERS AND DIRECTORS FOR 1901 AT BRANTFORD MEETING.

THE CANADIAN HORTICULTURIST

Vol 24 1901 No 2

** FEBRUARY **

THE BRANTFORD MEETING—II.

CONSIDERING the extreme value to farmers and fruit growers of the discussions at our meeting in Brantford, and the talented gentlemen who were invited to speak, it was surprising what a little local interest was aroused. We had a large outside attendance, but Brantford people were conspicuously absent. In future we shall take good care not to accept an invitation unless guaranteed a good local attendance and interest. Six places have competed for the next meeting, and we have accepted the invitation to Cobourg because backed up by a good live affiliated horticultural society, which insures a local interest. Many who are not able to attend our annual meetings will be pleased to see in our frontispiece our present directorate, and compare it with that of 1892 shown last month. This one is engraved from a photograph by Park & Co., of Brantford.

We are fortunate in being able to include H. L. Hutt, Professor of Horticulture of the O. A. C., Guelph, and W. T. Macoun, Horticulturist of the C. E. F., Ottawa, who by virtue of their positions well deserve a place on our directorate.

Mr. W. H. Bunting reported for the Committee on Transportation, showing that while much yet remained to be sought for, some more reasonable concessions had been made on carloads of fruit to about 20 per cent. The making of 20,000 lbs. a carload made it impossible to get the advantage of the reduction in the case of this fruit, because, owing to the light weight of this fruit and room occupied by the baskets, this weight of grapes could not be put in a car. The committee was continued with one or two additional members.

Dr. Saunders, of Ottawa, contributed very largely to the interest of our meeting and to the value of our report, by his very able address upon Canadian fruits at the Paris Exhibition. Canada had won more medals and prizes in fruit than in any other department, and had created a most favorable impression among foreigners, leading to much inquiry for purchase.

The fruit forwarded by the Secretary by the Manchester Commerce on September 15th and on the Manchester Trader on October 5th had arrived in capital condition, although five days out of cold storage from

Manchester. Even peaches had arrived in good condition and gained for us a special *Grand Prix*.

At the evening session in Wickliffe Hall, an address of great interest was given by Mrs. John Hoodless of Hamilton, in which she gave a comprehensive account of the progress of women in the study of horticultural problems and practice in Great Britain, and strongly advocated that provision should be made in Ontario for the training of young ladies in this art, by the erection of women's buildings in connection with the Ontario Agricultural College at Guelph. The suggestion was adopted and a resolution passed supporting the ground taken by Mrs. Hoodless on this subject.

The secretary showed quite a number of fruit packages for the consideration of the meeting, including *the barrel* advocated by Nova Scotia and adopted by the American apple shippers, viz., staves 28½ inches long, head 17¼ inches, bilge 64 inches; *bushel apple-box* 22 x 10½ x 11, inside measurement; *pear-box*, 22 x 10½ x 5½; *peach-box*, 22 x 10½ x 4½. This was felt to be a very important matter, and one upon which uniformity should be secured as soon as possible. It was therefore referred to a committee consisting of W. M. Orr, W. F. Fisher, S. M. Culp, M. Pettit, T. H. P. Carpenter, W. H. Bunting, Robt. Thompson, D. J. McKinnon, A. H. Pettit, E. D. Smith and L. Woolverton.

MAKING WHITEWASH.

AT DAIRY conventions and meetings the necessity of *perfect cleanliness* and the advantage of an *attractive appearance, inside and outside*, at cheese factories and creameries are constantly reiterated. The following receipt for making whitewash is highly recommended:

Take half a bushel of unslacked lime. Slake it with boiling water. Cover during the process to keep in steam. Strain the liquid through a sieve or strainer, then add to it a peck of salt previously dissolved in warm water; three pounds of ground rice boiled to a thin paste and stirred in while hot; half a pound of Spanish whiting, and one pound of clean glue, previously dissolved by soaking in cold water, and then by hanging over a slow fire in a small pot hung in a larger one filled with water. Add five gallons of hot water to the mixture, stir well, and let it stand a few days covered from dirt. It should be applied hot, for which purpose

it can be kept in a kettle or portable furnace. A pint of this whitewash mixture, if properly applied, will cover one square yard. It is almost as serviceable as paint for wood, brick or stone; and is much cheaper than the cheapest paint.

Coloring matter may be added as desired. For cream color add yellow ochre; for pearl for lead color add lampblack or ivory black for fawn color add proportionately four pounds of umber to one pound of Indian red and one pound of common lampblack; for common stone color add proportionately four pounds of raw umber to two pounds lampblack.

Cheesemakers might use a barrel and steam, instead of a furnace. The east end of the President's house at Washington is embellished by this brilliant whitewash. It is used by the government to whitewash light houses.—*Report Cheese and Butter Association.*

AGARICACEAE OR GILL-BEARING MUSHROOMS.

IT is not my intention to attempt a systematic and thorough discussion of this subject. I take it for granted that what is desired for the columns of the *HORTICULTURIST* is not a technical treatise that may interest students of mycology, but such a clear and concise description of the salient characteristics of a few of the more important species of this group as will enable the average reader to recognize them readily, and so enrich his fungus *menu* by one or more new acquisitions or to avoid at least the forbidden fruit that some have eaten to their cost. Judging from my own experience and that of others, I bespeak for every reader of the *HORTICULTURIST* an intensity of interest and pleasure every time that he identifies a new species, and places it for the first time upon his table, and partakes of it without harmful results. The subject of mycology is so fascinating, and the interest in it so easily awakened, that I venture the assertion that some who may read these articles will not be content with the few fragmentary thoughts that I may be able to give them, and will eagerly seek for more. To those unfamiliar with the subject it may be desirable to explain a

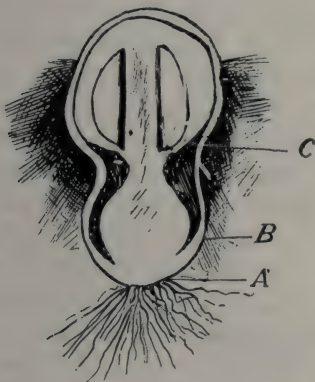


FIG. 1988. UNDEVELOPED AMANITA.

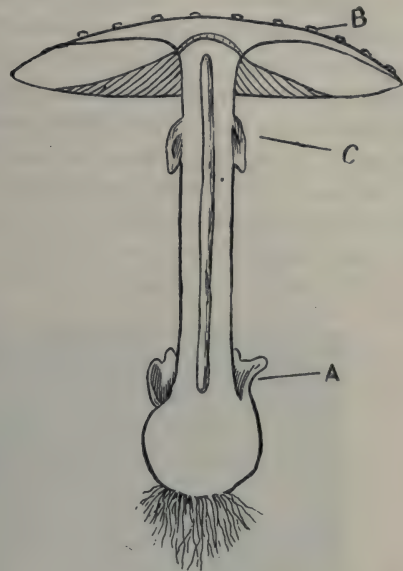


FIG. 1989. MATURED AMANITA (*McIlvaine*).

few terms used in describing the more important structural features of this group.

Fig. 1988 represents a cross section of a young and undeveloped amanita. The letter A points to the mycelium or thread-like vine, the true fungus from which the fruit or mushroom grows ; B—the outer envelope or volva, by some styled the “universal veil,” completely enwrapping the whole plant ; C—the inner or partial veil connecting the stem with the cap and enclosing the lamellae or gills.

Fig. 1989 represents a cross section of the same plant at maturity. During the period of growth the outer veil has been ruptured, and nothing remains of it but a cup or sheath at the base of the stem indicated by the letter A, and some shreds or fragments looking like scales or warts on the top of the cap ; (B). The inner veil has also been torn from the cap and now appears as an annulus or ring about the stem ; (C). The gills under-

neath the cap serve the important purpose of affording surface for the development of spore-bearing cells (basidia) known collectively as the hymenium. The cap or pileus is sometimes styled the hymenophore because of its bearing the hymenium. The spores shed from the basidia are of different sizes, shapes and colors, and afford important features for the determination of species. For instance, the family agaricaceae has been divided into five series, viz., leucosporae, rhodosporae, etc., according to the

(1) *Agaricus Campestris*, or Meadow Mushroom—This is the best known of all our mushrooms and the one usually cultivated artificially. Fig. 1990 presents a group in different stages of development. The second specimen from the left is one in the young or button stage. There is no volva or universal veil surrounding it, as illustrated in Fig. 1988; but there is a partial veil connecting the cap with the stem, and leaving when ruptured by the growth of the plant a ring or remnants of a ring upon the stem. The



FIG. 1990. *AGARICUS CAMPESTRIS*.
(From Coville, U. S. Department of Agriculture.)

color of the spores, whether white, pink, brown, purple, or black. The shape of the cap and the gills and their relation to the stem or stipe, the shape and position of the ring, the presence in some form or other of one or both of the veils referred to, or their entire absence afford important distinctions by which species may be determined. Standing at the head of the family Agaricaceae, the very aristocrat of the whole mushroom race, is the genus *amanita*, to which belong our most poisonous varieties. I shall reserve the discussion of these for the next article, and shall proceed to describe some edible species belonging to this family found within the college grounds, or in the neighborhood of Whitby.

cap when fully expanded is from two to three and a half inches in diameter and varies in color from creamy white to light brown or tawny. The gills are unequal in length and are pink when first revealed, afterwards changing to brown, purple brown, and almost black. The stem is solid and generally shorter than the horizontal diameter of the cup, and about equal in thickness throughout. The spores are brown and may be obtained by placing a mature specimen gills downward on a piece of white paper, care being taken to cover it with a tumbler or bowl to exclude draughts of air. We cannot shake the spores out of this mushroom, and have them appear in the form of dust, as in the case of the puff ball. If it is

desirable to preserve a "spore print" the surface of the paper should be coated with a thin solution of gum arabic. This mushroom has been found for many years in great abundance in our college lawn and pasture fields. During last summer the pasture field was plowed up, and this only added to the luxurious growth of mushrooms. The usual custom of peeling this mushroom before cooking is a mistake, as it takes away from it its choicest flavor. It may be fried in butter or stewed in milk or cream, or eaten raw, and is always palatable and easily digested.

(2) *Agaricus Arvensis*, or Horse Mushroom.—This has been considered a large variety of the *Compestris*, and has likely received its name, "horse mushroom," because of its size and rankness of growth on the same principle that the horse radish received its name. Its cap often expands to the diameter of six or seven inches. It resembles in many respects the *compestris*, but differs from it in having a hollow stem, a slightly bulbous base, a double ring or collar, and a paler shade of pink in the gills of the young plant. Dr. Peck says of it: "The collar appears to be composed of two parts closely applied to each other and making a double membrane, the lower part of which is of a thicker, softer texture and split in a stellate manner into broad yellowish rays. This is perhaps the most distinctive character of this species." It has been supposed that the spores of this and of the preceding will not germinate until they have passed through the alimentary canal of the horse. Whether this be so or not, it is certain that it is only in soil enriched by the manure of this animal that either of them can be successfully grown in gardens or in cellars. *A. arvenses* has been found in considerable quantities in and around the college hot beds.

(3) *Agaricus Gambosus*, known in England as St. George's Mushroom.—It is one

of our earliest spring mushrooms, having been found as early as April 23rd. Its most striking feature is its densely-crowded, yellowish white gills of unequal lengths, each annexed to the stem with a decurrent tooth as shown in Fig. 1991. The cap is about three inches in diameter, occasionally five inches, and is *smooth* (no patches or warts on surface), thick, and fleshy, suggesting soft kid leather, at first rounded, convex, ultimately expanding quite horizontally, and is commonly fissured here and there with irregular cracks both in its expanse and at its edges. Its color is white or yellowish white. The stem is comparatively short, thick and solid with a slight



FIG. 1991. *AGARICUS GAMBOSUS* (Gibson).

enlargement toward the base, and *with no indication of volva or sheath*. This latter feature will be more strongly emphasized when we come to speak of poisonous varieties. It has a stronger fungus odor than the common mushroom and sometimes grows in rings and clusters. It has been found for some years on college grounds, and its edible properties have been fully tested.

(4) *Marasmius Oreades* or Fairy Ring Mushroom, called in England "Scotch Bonnets," also "Champignons."—It received the name "Fairy Ring" from its tendency to grow in rings or circles or parts

of circles. Fig. 1992 gives a good idea of its appearance on the lawn. In the early days of superstition it was thought that the rings marked the place of fairy dances, or bolts of lightning, etc. It is now known that the ring is due to the outward growth of the mycelium. Starting with a single fungus whose development in the soil takes from it the constituents necessary to its growth. This exhausted condition of soil necessitates

the college lawn about twenty years ago, and its manifest rings presented a rather unsightly appearance, and special efforts were put forth to stamp it out. Of late years we hail it with delight and proceed to fill our baskets with wholesome and nutritious mushrooms. The following description of this fungus is given by Dr. Peck: "Pileus fleshy, tough, glabrous, convex or nearly plane, often somewhat umbonate,



FIG. 1992. *MARASMIUS OREADES*.
(U. S. Department of Agriculture.)

the outward spread of the mycelium, and so it extends from year to year, growing always on the outside and dying on the inside, thereby indefinitely increasing the diameter of the ring. Should any cause intervene to stop the growth of the mycelium in any direction, a broken ring or an arc of a circle would be formed. Strange to say the grass surrounding the ring is always deeper in color and more luxuriant in growth than the rest of the grass on the lawn.

This mushroom made its appearance on

reddish or tawny red, becoming paler with age or in drying; lamellae broad, distant, rounded behind or free, whitish or yellowish; stem slender, tough, solid, coated with a close, dense villosity, whitish; spores nearly elliptical white .0003 to .000035 inches long." The cap is from one to two inches in diameter and the stem from one to two and a half inches in length and about a quarter of an inch in thickness.

Fig. 1993 shows a couple of young specimens. In these the mound or umbo, at the



FIG. 1993. YOUNG SPECIMEN
MARASMIUS OREADES.
(U.S. Dept. of Agr.)

room, and that is that the gills are rather broad and wide apart, showing at the rim of the larger specimens not more than ten to twelve to the inch. I draw special attention to this characteristic, because associated with it on our college grounds is a poisonous species, *Marasmius ureus*, closely resembling it in shape and size but differing materially in the number and closeness of the gills,

junction of the stem and cap, is not so manifest as in some others. In old specimens the pileus is usually flat.

Fig. 1994 exhibits one of the most striking and important characteristics of this mush-

having from twenty-five to thirty to an inch. They differ also in taste. The true fairy ring can be eaten raw and is quite agreeable to the taste, in fact it has been described as "sweet, nutty and appetizing," whereas the poisonous variety is rather acrid to the taste. Another species, *Nan-coria semiorbicularis*, said to be found sometimes in company with *Marasmius oreades*, but I have not yet succeeded in obtaining it. Should any reader of the HORTICULTURIST desire specimens of *Marasmius oreades* and *Marasmius ureus* at the proper season, I shall be pleased to send them to them.



FIG. 1994. MARASMIUS
OREADES SHOWING
THE GILLS.
(U.S. Dept. of Agr.)

J. J. HARE.

Ontario Ladies' College, Whitby, Ont.

FEEDING CROPS.

FOR hundreds of years the common practice in farming has been to feed the soil rather than the crops grown on the soil. So ancient is this practice that it has become a fixed law, and many intelligent farmers even to this day continue to enrich the soil without any considerable reference to the crops to be grown thereon. This is one of the most stubborn habits the scientific agriculturist has to contend with; still, it must be understood that the science of farming is so young that many of us well remember the rather startling propositions of Liebig and Lowes, and with what incredulity they were first received by the vast majority of even the more intelligent classes of farmers.

All this brings us back to the main point, the feeding of crops. Stated briefly, crops

should be fed (fertilized) with reference to the special needs of the crop. A soil in good general condition is not sufficient of itself, just as good farmers now know there is no good general purpose in anything on the modern farm. A soil black with humus, and in excellent tilth, may answer very well for certain crops, but these are the very crops so common on such soils, and which usually are but slightly profitable. The successful modern farmer is one who quickly learns what crops are to him most profitable, and learns also how to make his soil produce those very crops, whether they are common to his neighborhood or not.

The first thing to do in most cases is to *unlearn* all the old ideas as to manures, soil heart, etc., and to confine the idea of plant feeding to the bare fact, now unquestionably

fixed by thousands of scientific experiments, that plant food is not merely manure, or fertilizer, or fertilizer chemicals even, but the nitrogen, potash, and phosphoric acid contained in these substances. This is the first idea to fix thoroughly in the mind, and a great deal has been gained when so much is accomplished. Next should be considered the feeding habits of plants, and these are shown largely by the chemical analysis of the whole plant substance of any crop, grain or forage, including in every case the roots, stubble and straw—all such parts as are commonly considered useless as having no sale value. It is well to look into these refuse portions of crops still more closely. While straw, roots and stubble have little crop value in the market, they take up their proportionate amount of the plant food needed for the crop; but, without these comparatively useless proportions the valuable grain or forage as the case may be, cannot be realized. Hence, the plant food required for a certain crop must always include an allowance for the elements contained in the comparatively useless stubble, roots and straw.

The feeding habits of the chief grain crops are shown roughly by the following table, giving the actual plant food required for crops as indicated:

	Bu. per acre	Nitrogen	Potash	Phos. Acid
Wheat	35	60 lbs.	35 lbs.	25 lbs.
Rye	30	52 "	47 "	27 "
Barley	40	47 "	39 "	22 "
Oats	60	56 "	65 "	23 "

It is imperative, in order to realize the yields as above, that the crops should have in available form the quantities of nitrogen, potash and phosphoric acid given in the

table. It is also well known that crops cannot sweep a soil clean of food, and that all plant food elements must be present in excess of the actual requirement of the crop. Knowing this, the farmer can easily balance his plant food to fit the crop.

Unfortunately, there is a tendency among farmers to use incomplete fertilizers (fertilizers not containing all three of the essential elements of plant food), and to these we must say that the laws of plant growth are inflexible; no one element of plant food can replace another. If any two are present in ample quantities, or even in excess, and one element deficient, the crop is limited by the deficient element, the excess of the other two elements goes largely to waste. In this connection, farmers will do well to scan the composition of the fertilizers offered by dealers, to see if they are not practically incomplete in the sense that one or more elements are present only in very small percentages.

Where incomplete fertilizers are used to grow a legume (plants of the clover type), the procedure is rational, as the object is to favor a heavy growth of the legume, which type of plant not only takes up atmospheric nitrogen for its own uses, but also stores up large quantities in roots and stubble which may be used as plant food for succeeding crops. In this case, potash and phosphates must be used liberally, as the nitrogen cannot be assimilated unless certain quantities of potash and phosphates are present to accompany same in the vegetable substance of the crop. It must be kept in mind, however, that fertilizers for this purpose may be deficient in nitrogen only.

S. P. Cox.





FIG. 1995. PYRAMIDAL ARBOR VITAE.

CENTRAL EXPERIMENTAL FARM NOTES.—XIII.

THE weather during the past month has been very changeable. There has been no continued spell of very cold weather and no mild weather worth mentioning. On November 14th four inches of snow fell, and there has been a constantly increasing depth of it until now there is fully three feet on the level and more in some places. The heaviest snowstorm since the

first of the year occurred on Jan. 12th, when fourteen inches of snow fell. The coldest day was on the 18th, when the temperature was 24° Fahr. below zero, but on the 3rd it was 21° Fahr. below zero, almost as low. There has been more cloudy weather than is usually the case during the month of January. On the 16th there was a heavy rainstorm which lasted five or six hours and the

weather continued mild most of the day, but in the evening it froze again. The snow must have been lessened somewhat, but not perceptibly.

Owing to the heavy covering of snow there is very little frost in the ground. The probability is that on this account spring will open very early this year, though it may be backwards enough later on. Bulbs had a splendid opportunity of making great root growth, and the flowers next spring should be very fine.

Evergreens are noticed in the winter months perhaps more than in the summer on account of their contrast with the bare-looking appearance of the deciduous trees, and it is surprising how much more comfortable a house looks with a few evergreens near it, even though they do not offer any protection from the cold winds, which they often do.

Among evergreens there are few as satisfactory as the different varieties of American Arbor vitæ. At the Central Experimental farm there are now fifty-one distinct forms growing which vary much in foliage and habit of growth from the dwarf and compact "Little Gem," which is only a few inches high, to the pyramidal Arbor vitæ which rises straight and full in striking contrast to it. The American Arbor vitæ adapts itself to a great variety of soils, and it is only on the heaviest clay and lightest sandy soils that it fails to make satisfactory growth. This adaptability to so many different situations is one of the reasons why it is so valuable for ornamental planting. Another important reason why they are so desirable is that they are all perfectly hardy, as the ordinary form grows in the coldest parts of Ontario and Quebec. Owing to the dwarf or semi-dwarf habit of most of the varieties, they are very useful for small grounds where there is not room to grow anything which will reach a great size. Some of the varieties are so distinct in shape, such as *com-*

pacta, *globosa*, *pyramidalis*, and *Hovei*, that visitors to the Experimental Farm are often led to believe that they have been pruned to their several shapes until informed to the contrary.

Out of the large collection the following are selected as being among the best as regards form and color of foliage :

Douglas' Golden Arbor vitæ (*Thuya occidentalis aurea Douglasii*) : For those who are fond of yellow foliated evergreens, this is a very desirable one. It is of a fine, upright form, with bright golden leaves which retain their yellow color well in the winter, making this tree very attractive at that time of the year. Contrasted with darker kinds it makes a good effect.

Compact Arbor vitæ (*Thuya occidentalis compacta*) :—This is a compact, dwarf variety with bright green foliage and is very pleasing to the eye. There is a variety, Parsoni, which is particularly good.

Ellwanger's Arbor vitæ (*Thuya occidentalis Ellwangeriana*) :—Although this variety does not grow very tall, specimens from twelve to fourteen years old being about four feet high, it is a vigorous growing sort and spreads out well. It is a compact variety and has slender leaves and branches which give it a less stiff appearance than some other varieties.

Hovey's Arbor vitæ (*Thuya occidentalis Hovei*) : This is one of the finest and most attractive varieties. The leaves are bright green and the branches flat and parallel, giving the shrub a very remarkable but pleasing appearance. It does not grow very tall, specimens from twelve to fourteen years of age being only between four and five feet high.

Pyramidal Arbor vitæ (*Thuya occidentalis pyramidalis*) :—The pyramidal Arbor vitæ is one of the most distinct in form. It is a compact and very upright grower, being quite columnar in form, which makes it a very conspicuous object wherever planted.

Siberian Arbor vitae (*Thuya occidentalis* ~~wareana~~ *Sibirica*):—The Siberian Arbor vitae is one of the best known varieties. It is of compact habit, and while not as dwarf

Thuya occidentalis *Columbia*:—Of those varieties of the American Arbor vitae which have variegated foliage this is one of the best. The tips of the leaves, which are rather blunt, are whiter than most of the other variegated forms, and the contrast between the lighter parts and the green is, therefore, more marked. This is a very beautiful variety.

There are a good many species of spruce, and of the Norway spruce especially there are a great many varieties, but there are few of them which are better than the ordinary forms. The Norway spruce (*Picea excelsa*) is one of the best evergreens that will grow in this country. It is hardy, of rapid growth and good form, and possesses more good points than any of the other species.

The Rocky Mountain Blue Spruce (*Picea pungens*) is a very handsome tree. It lacks the graceful form of the Norway, but if a good specimen of the glaucous form is procured there will be nothing found to equal the beauty of the steely blue foliage. This tree is a slow grower and it takes some time before it reaches a great height. The beautiful specimens growing at the Central Experimental Farm are the wonder and admiration of all visitors. This species varies much from green to steely blue, and in ordering this tree the blue variety should be asked for.

Among the newer spruces there are none of the hardier species which equal Alcock's spruce (*Picea Alcockiana*) in beauty. It is a native of Japan and there attains a height of from forty to sixty feet. It is quite distinct from other species. The upper surface of the leaves is dark green and the lower surface is bluish, silvery-green, and the contrast gives the tree a very attractive appearance. The cut of this spruce, which was produced from an excellent photo taken by Mr. F. F. Shutt, gives some idea of the character of it.

The native White Spruce (*Picea alba*) is not to be ignored. When given plenty of



FIG. 1996. ALCOCK'S SPRUCE.

as some others, it does not grow very tall. The leaves have a blunt appearance, which distinguishes it from most varieties, and their deep bluish green color is also quite distinct.

room where it can develop symmetrically it makes a handsome tree. The White spruce varies much in the color of the foliage, and by a careful selection specimens may be obtained which almost equal the Blue spruce in beauty of coloring. If one cannot afford to buy trees of other species one can get much satisfaction from growing a White

spruce. The trees should be planted when quite young to get the best results, and they should be branched almost to the ground. If larger trees are planted they are liable to be scraggy or will become so.

W. T. MACOUN,
Horticulturist, Central Experimental Farm,
Ottawa.

IMPORTATION OF NURSERY STOCK.

ORDER IN COUNCIL.

His Excellency, in virtue of the provisions of section 5, chapter 23, 61 Victoria, intituled "An Act to protect Canada from the Insect Pest known as the San José Scale," and of 63-64 Victoria, chap. 31, "An Act to amend the San José Scale Act," and by and with the advice of the Queen's Privy Council for Canada, is pleased to order that exemption from the operations of the above mentioned Act shall be and is hereby authorized of any trees, shrubs, plants, vines, grafts, cuttings of buds, commonly called Nursery Stock from any country or state to which "The San José Scale Act" applies; and that all importations thereof shall be and are hereby permitted to be entered at the Customs Ports only of St. John, N. B., St. John's, Que., Niagara Falls and Windsor, Ont., and Winnipeg, Manitoba, between the following dates in each year; in the spring, and in the autumn; and at Vancouver, British Columbia, during the winter months only, at which ports they will be thoroughly fumigated with hydrocyanic acid gas by a competent Government official in accordance with the most approved methods.

All shipments made in accordance with the above will be entirely at the risk of the shippers or consignees, the Government assuming no risk whatever.

Packages must be addressed so as to enter Canada at one of the above named ports of entry, and the route by which they will be shipped must be clearly stated upon each package.

As it is well known that well matured and thoroughly dormant nursery stock may be safely treated, but that there is danger of serious injury to the trees if fumigated in the autumn before the buds are thoroughly dormant, or in the spring after the buds have begun to unfold, all stock which when received is immature or too far advanced for safe treatment will be refused entry and held at the risk of the shipper.

His Excellency, in virtue of the provisions of section 7 of the Act first above mentioned, is pleased to direct that the authority herein granted be published in the *Canada Gazette*.

JOHN J. MCGEE,
Clerk of the Privy Council.

THE CANADIAN EXHIBIT OF FRUIT AT THE PARIS EXHIBITION OF 1900.

COLLECTION OF THE FRUIT, ETC.

THE collection of fruit and vegetables for the great International Exhibition was begun in June, 1899, in time to obtain the earliest fruits of the season.

The work was begun simultaneously in the different Provinces of the Dominion. This was absolutely necessary where so large an extent of territory had to be gone over. In the older Provinces the work was put into the hands of experienced men, under the general direction of the Director of the Experimental Farms. A good deal of the work was done at the several experimental farms—their splendid collections of fruits and vegetables giving them unusual facilities for the task.

As it was desirable to make as complete an exhibit as possible of the various fruits of the country, it was necessary to preserve the soft fruits and the smaller vegetables, that were quickly perishable, in antiseptic fluids, in clear, glass jars. For that purpose jars of various sizes from a pint to a half bushel were procured and sent to the collectors, together with the formulas, and the necessary chemicals and alcohol to be used in making the antiseptic fluids. Thus fitted out the collectors went into the country, and either personally collected the fruit in the gardens and orchards or made arrangements to have it sent to a central point where it could easily be reached and collected for preservation.

FORMULAS FOR PRESERVING THE FRUIT.

1st. A two per cent. solution of formalin was used for strawberries, red raspberries, black berries, and black currants. 2nd. A two per cent. solution of boracic acid for

cherries, red and black currants, red gooseberries, red and black grapes, plumbs and apples. 3rd. A three per cent. solution of chloride of zinc for all light colored fruits, green and russet apples, &c. 4th. A solution of sulphurous acid, of one pint of the acid to eight pints of water, to be also used for light colored fruits. 10 per cent. of alcohol was added to all these solutions to prevent danger from freezing,

These preservative fluids were calculated to preserve the colors as well as the substance and texture of different fruit, and accomplished the desired end fairly well, and would doubtless have been perfect had the fruits been always in proper condition when put into it. In fact so well did they accomplish that purpose that they were universally admired. Probably no part of the general exhibit of Canada, or for that matter of any of the countries exhibiting, awakened so great a degree of interest and gave opportunity for asking so many questions as the splendid display of Canadian fruit, both natural and in solution. The bright liquids and the clear glass jars gave the preserved fruit a very tempting appearance. Householders never wearied of admiring it, nor of enquiring how it was done, when it was gathered, and what were we going to do with it at the close of the exhibition, and the disappointment was correspondingly great when they found that it was not to be eaten. As the summer was full advanced, the astonishment was always marked when visitors, in answer to their questions, were told that the natural fruit was of the year 1899. A considerable quantity of the fruit of 1899 was still in perfect preservation when the new fruit was installed in October.

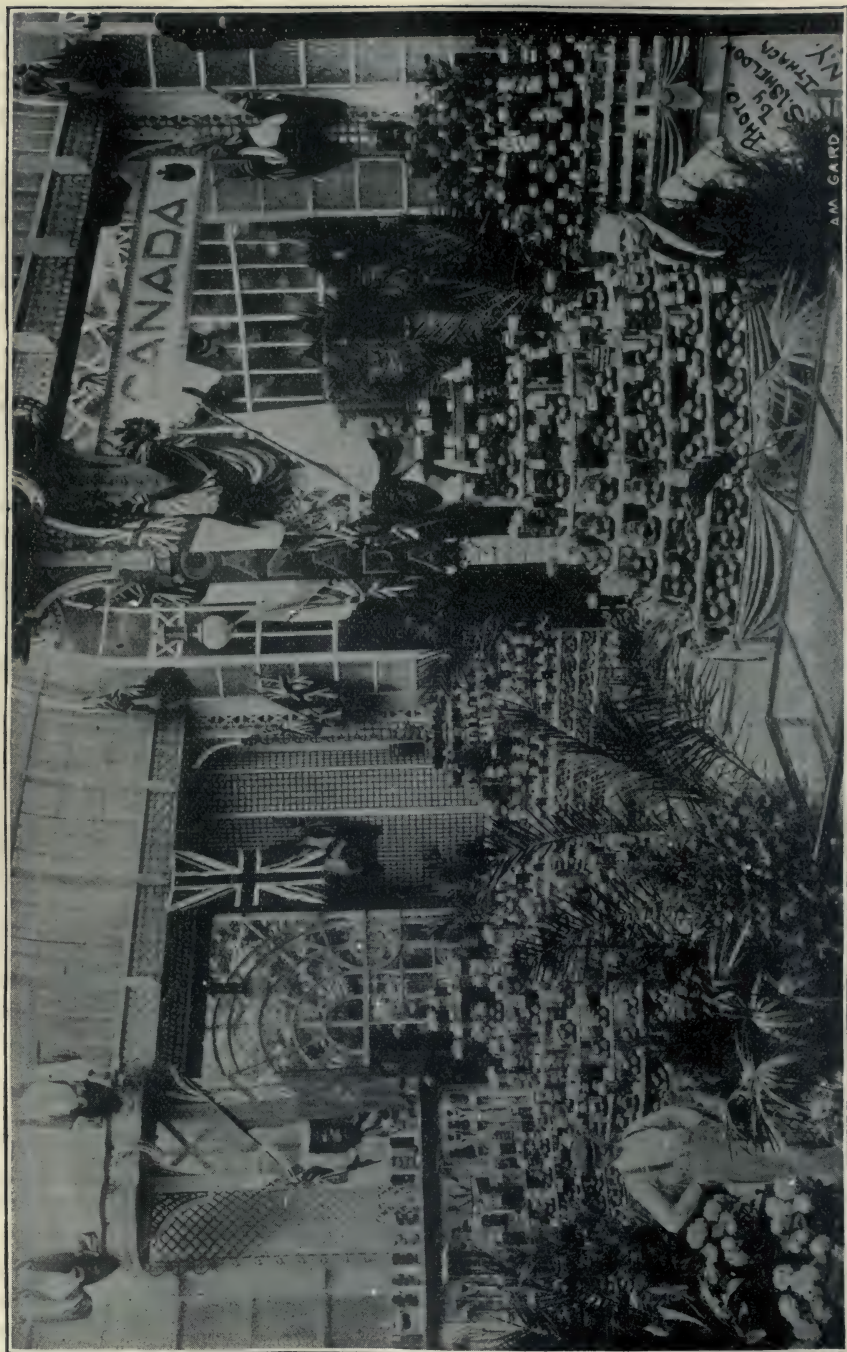


FIG. 1997. THE CANADIAN FRUIT EXHIBIT.

FRESH FRUIT—APPLES.

Our fine fruit, in such variety, and in such admirable keeping and condition, as it was throughout the entire seven months duration of the exhibition, seemed a new revelation to many of the visitors. It seemed incomprehensible to most of them, who had never heard of cold storage or had only a vague idea of what it was.

The entire collection of fruit and vegetables consisted of about 1700 jars in solution and over 500 cases of fresh fruit—apples.

Although there were a great many of the cases of bottled fruit broken in transportation, there were still nearly 1400 jars in good condition for the exhibition, and nearly a hundred varieties of apples were placed on the tables and stands for our first concours.

It is perhaps needless to say that many of the jars of fruit in solution were spoiled by the intense heat of the Horticultural building (a glass structure), but about 1200 were still in good condition at the close. The losses were chiefly in the colored fruit, which, while it retained its form, almost entirely lost its color.

It will be easily understood that the collection and preparation of such an exhibit was no holiday task, and called for sound judgment and a great deal of thoughtful consideration from those engaged in it, and also that it was not accomplished without a large outlay of money.

PREPARATION OF THE PERISHABLE FRUITS.

For the due preparation of the fruit, scales, weights and measures were necessary, besides vessels in which to mix the several solutions. Strainers and filtering papers were also necessary, perfect cleanliness and clearness of the fluids being amongst the conditions required in thorough work. It was further necessary that the fruit should be as nearly as possible without

bruises or imperfections of any kind, and it is gratifying to know that many fruit growers put their best fruit at our disposal for this purpose and gave us a free hand, so that it was sometimes possible to take our apparatus into a garden and stay a few days in the neighborhood, by this means securing the best species in the best condition and at once putting it into the preserving fluid, thus obviating the necessity of a second handling.

The water used in the solution required to be of the clearest. Generally there was no difficulty in procuring it, especially where a filter was within reach. Otherwise distilled water was used when renewing the solutions, as was sometimes necessary in Paris. The Seine water, the only water procurable in the Horticultural building, was very impure.

All the small soft fruit, i.e., the strawberries, raspberries, cherries, currants, gooseberries, &c., were put up in pint bottles. The greater weight of a larger quantity than a pint would have crushed the fruit, and besides, the smaller bottles showed the fruit to better advantage. Some of the smaller plums, also, were put into these small bottles.

For the general run of plums a quart jar was used, and for the largest sizes a two quart jar. Crab apples and the smaller sizes of apples were also put into the two quart jars. The general run of apples and small sized pears required a gallon jar, or larger, and the largest sizes, Alexanders, &c., took the largest sizes at our disposal, and, unfortunately, the largest sized jars suffered the most in the transportation.

Packing and placing in cold storage from time to time when a sufficient quantity of fruit had accumulated it was collected, re-labeled and carefully packed in medium sized cases for shipment and transferred to the cold storage warehouse, there to remain till finally shipped to Paris.

The bottled fruit did not suffer as much

from the several transhipments as might have been expected, when it is remembered that much of it came from British Columbia, the North-West and Prince Edward Island, Nova Scotia and New Brunswick. With all the handling that these changes entailed, with the double handling at Montreal, re-handling at Portland, from train to ship, and again from the ship to train at Antwerp, and finally at Paris, it is little short of miraculous that it reached its destination at Paris as well as it did. It is, I think, safe to say that the greater part of the injury sustained by the fruits in solution was after it reached Paris. There the laborers engaged seemed incapable of handling anything except in the roughest manner. They apparently took a fierce pleasure in throwing things about.

PARIS.

On our reaching Paris in the end of March, we found everything in the buildings in confusion. No part of the building was ready, nothing was completed, and, to add to the confusion, large quantities were continually arriving and being laid down in the building, or outside of it, so that for some time it was necessary to climb over piles of cases to get into the building—such was the state of matters in the Canadian pavilion. In the Horticultural palace, where our fruit exhibit was to be made, things were in a still worse condition. Our side of the building was neither roofed nor paved, and all our efforts for several weeks accomplished nothing in hastening the work. Repeated visits to the office of the British Royal Commission, in whose hands our portion of the building was, yielded nothing but promises. After some weeks delay the roof was put on, and as there was no prospect of the paving being attended the Commissioners finally determined to put a floor down and proceed with preparation for our installation, as the placing of our fruit was called.

PREPARATION FOR INSTALLATION.

After many delays through waiting for lumber and material of various kinds, and the dilatory character of the French mechanic, about the first of June we were ready for the installation of the fruit, but we had yet to learn many things of French methods of not doing it. Our fresh fruit that was in cold storage at Liverpool took nine days to reach Paris, by *Grand Vitesse* as their trains are called.

In building the stands, etc., for the display of our fruit, we were necessarily restricted by the size and shape of the space at our disposal. This space was divided, in its length, into two nearly equal parts, at different levels, the higher being raised about two feet above the lower—the whole being about forty feet square. On the upper space, twenty by forty feet, we built four oblong stands or tables, taking up nearly the entire length of the space, less the passages, one semi-circular shelving stand, and two quarter circle shelving stands, one in each of the two corners at the ends, in all seven stands on the upper level. On the lower part, out of which the British Royal Commissariat had reserved two spaces of about six by twelve feet each, we built two oblong shelving stands, two regular octagonal pyramids and one oblong pyramid all with shelves, five stands in all on the lower level, making altogether twelve stands of different sizes and shapes that suited our installation perfectly.

On the small shelving stands of the upper level we made displays of bottled fruit and vegetable only; on the four long tables, at first only fresh fruit, and on the long stands the lower level, as well as the pyramids, composite displays of both fresh and bottled fruit. We changed them, however, as much as possible for every succeeding *coucoure*.

These stands suited the character of our exhibit by Provinces. We were able to

allot a larger or smaller stand to each of the Provinces according to the size of its exhibit, while reserving a large space for a Dominion display. The whole installation when completed was very much admired, both by visitors and judges. When our visitors had feasted their eyes on the different kinds of fruit, and afterwards were invited to sample some of the best flavored, their admiration knew no bounds, and when afterwards they were shown on the map of Canada, which we had hanging on the wall, the locality from which the fruit came, and saw that it extended from ocean to ocean, nearly 4,000 miles in extent, they mostly allowed that Canada must be a great country, in fact, next to France.

THE CONCOURS IN COMPETITION.

These concours, as they were called by the administration, took place every fortnight or three weeks. They were not really competitions. Every object was judged on its individual merits and without regard to the quality of other similar objects. A number of points was adopted as a standard (20) and in accordance with the number of points obtained by the object, under judgment, it received a first, second or third prize, or, perhaps, honorable mention. The number of points adopted as the standard was twenty, and from 15 to 20 entitled the object to a first prize or gold medal; from 11 to 15 to a second prize or silver medal, and from 6 to 11 entitled the object to a third prize or bronze medal; below 6 it might receive honorable mention.

THE INTERNATIONAL JURY OF JUDGES.

The International Jury, as the whole body of Judges was called, was largely French, but its members were also chosen from all the nationalities exhibiting, so that besides Frenchmen there were Russians, Germans, Austrians, Hungarians, Swedes, Japanese, Americans, Australians, Italians, and

Canadians. In the section on fruit and fruit trees, there were about 25 or 30 in all, and the whole number present on any occasion, together judged and passed, upon the objects before them; but the fact was that only a few were able to see the object under judgment; the few declared their opinion and the rest simply acquiesced. These decisions were generally regarded as fairly just, though, occasionally, on remonstrance from interested parties, they were reversed. I think, however, that full justice was done to the Canadian fruit on every occasion.

VARIETIES OF FRUIT IN THE CANADIAN EXHIBIT.

As our first concours, on the 25th of June, we had about 90 varieties of apples, but they rapidly dwindled down until at the concours, of the 26th September, we had not more than 7 or 8. Amongst those that held out to the last were the Spies, Baldwins, American Pippin, Ontario, Nonpareil, Rox Russet, Golden Russet, and Mann. We had now, however, received some of the new fruit, and, besides apples, showed a very good collection of pears and peaches.

From the first the fruit on the stands was daily examined, and decaying specimens were removed and replaced by fresh fruit. The slightly damaged fruit served for sampling, but was mostly given to the Sisters of Charity, or some one of the city institutions, who called for it two or three times a week.

The changes that took place in some of the varieties of apples on exhibition were very remarkable. While the greater part of the fruit exposed turned brown, softened and rotted, many specimens seemed to undergo a sort of induration and remained unchanged, except that they faded and became almost colorless. This peculiarity was not confined to any one particular kind. Some specimens from a good many kinds were subject to it: not juicy fruits, how-

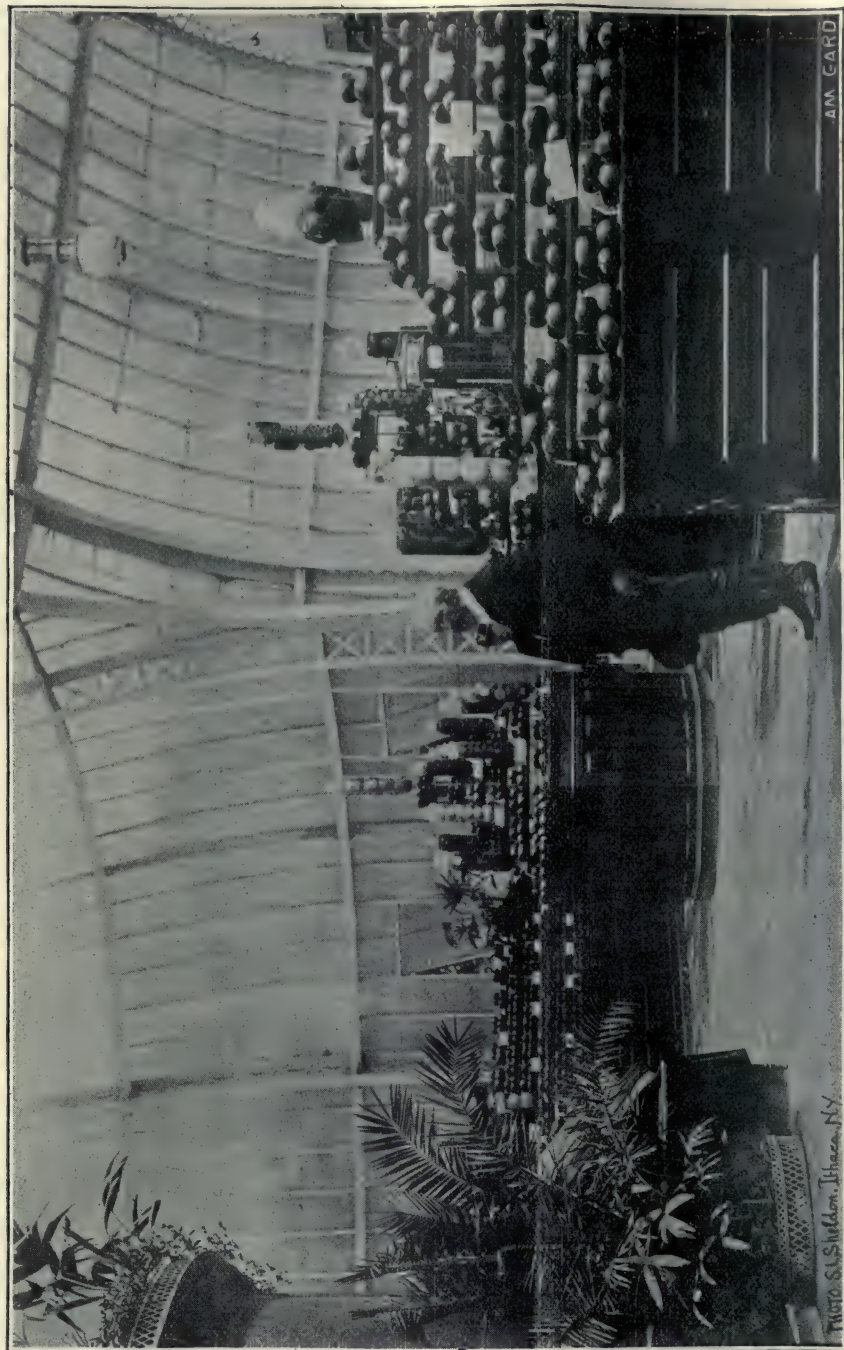


FIG. 1998. THE UNITED STATES FRUIT EXHIBIT.

ever—*Spys never*. Such varieties as American Pippin, Baldwin, Canada Red, Canada Baldwin, Spitzenburg, La Salle, and some of the Newman seedlings. The Russets and the Fallawater shrivelled but retained their flavor and soundness. The only juicy fine fleshed apples that kept well were the Spys and the Ontarios.

The only other exhibit of fresh fruit besides the Canadian, that calls for mention, was that from the United States, but it did not, at any time, contain as large a number of varieties. Their Jonathans, York Imperials, Winesaps, Newtons, Ben Davis, Ingrams and some others were magnificent specimens, well colored and highly flavored.

The Russians on two occasions in early summer showed some very fine apples, but with the exception of the Synaps, of which they had three or four varieties, the rest were ordinary French varieties; they were from the Crimea.

The French at two or three of the earliest concours showed a few specimens of apples. The chief variety was the Reinette du Canada. They had a good deal better success in keeping grapes, some very fine clusters of the Chasselas de Fontainebleau were still in good condition in May, and I think in June.

The French exhibit of new apples on the 26th September and 10th October were both very large and fine, especially the latter, when they had 14 tables of apples and pears, each table holding from 340 to 495 plates of fruit. Of course, there was endless repetition even in the same collections, but they did not seem to take any notice of it.

On the 10th October the Germans, Russians, Swedes, and other European countries sent large collections of fruit, apples, pears, grapes, nuts, &c. That from Germany was very distinct and fine, but was very limited in number of varieties. The varieties were very choice, however, and looked as if they might all be good keepers, and some that we sampled were of the highest class in flavor, texture, and appearance. The finest in quality was Winter Gold Pearmain with Landsberg Reinette and Belle de Boscoop close upon it. Those same varieties when grown in the Crimea were of much higher flavor. The same fact is stated with regard to the pears and grapes, and as far as I have been able to test them my own testimony corroborates this.

ROBERT HAMILTON.

Grenville, Que.

HOW TO GROW THE RUBBER PLANT.—“Keep the rubber plant clean by giving it a soap bath,” writes Eben E. Rexford in the *Ladies' Home Journal*. “Tall plants can be made to branch by cutting off the tops. But young plants growing to the height of three or four feet in one straight stock will generally be found more satisfactory as they will have larger, finer foliage than old branching plants ever have. When growth is taking place use a fertilizer, as its demands on the soil are great, and ordinary soils are not rich enough to supply all its needs. The secret of

the successful culture of the rubber plant consists in always feeding it well at the times when a good deal of food is needed—and by this it will be understood that I refer to its periods of growth—and never allowing it to become rootbound. Keep the plant always going ahead, and avoid any treatment that will check its development if you would have a vigorous and healthy specimen. The rubber plant requires a much stronger light than the palm, therefore it is not as well adapted to room decoration in places some distance from the window as the palm is.”



NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE.

PEACH YELLOWS.

FOR several years investigators have been trying to determine the nature of this malady of the peach orchard. Dr. Erwin F. Smith, of Washington, worked carefully and patiently but reached no conclusive result as to the real cause. Although no positive conclusion was arrived at, yet many valuable additions were made to our knowledge of the conditions surrounding the Peach Yellows. For example, Dr. Smith showed that although the disease was communicable to other peach trees of the orchard, yet the manner in which the infection spread was very erratic. Young trees planted in the places of those destroyed often escaped infection, and trees nearby diseased ones often remained healthy; moreover, it was determined that neither the age nor the vigor of the trees was a predisposing factor in the matter of infection, as would naturally be expected if the cause were bacterial; besides, apparently the ravages of disease were not influenced by the nature of the soil nor the variety of the peach tree.

It was noticed also as a characteristic feature of the Yellows that the fruit ripened

prematurely, but here again a difficulty arose in trying to explain how it was that all diseased peaches of a tree did not prematurely ripen at the same stage of maturity.

It is very evident, then, that the disease must be produced by some cause operating independent of such factors as the age and variety of the tree or the nature of the soil in which the tree is growing. The cause, whatever it may be, must be sufficient to explain the fact of the communicability of the disease by budding, the irregular premature ripening of the fruit and the periodicity in the severity of the attacks.

In a recent number of *Science* (Dec. 7, 1900) Mr. O. F. Cook, of Washington, proposes a theory of the Peach Yellows, which should naturally attract some attention on the part of peach growers. In his own words, "the yellows may be the result of the poisoning of the protoplasm of the living cells by the bite of a small arthropod, probably a mite of the family Phytoptidae."

In support of his theory Mr. Cook brings forward well-known cases of leaf-spot, or yellowing of the tissues, which are plainly

due to punctures of insects and other minute animals. For example, a palm under his observation was spotted yellow by mites through the poison injected at time of puncture; the carnation leaf-spot or stigmonose is produced by the punctures of certain plant-lice; the tufted branching characteristics of yellows, observed on some plum nursery stock by Mr. Waite, was found to be produced by a parasitic mite; and the galls so frequently found on many trees and shrubs are abnormal growths produced directly or indirectly by the poisoning of adjacent tissues.

It is true that in most cases of plant poisoning by mites or insects that the results are mostly localized, and, as Mr. Cook says, "there is a wide gap between progressive change in a spot less than a quarter of an inch across and one which covers a whole peach tree, but the difference may be one of

degree and not of kind." He supposes that "the mite elaborates in its salivary or other glands an enzyme or other active compound to which the tissues of the peach and closely related fruits are peculiarly susceptible, and which produces in them a permanent and ultimately fatal debility accompanied by definite constitutional symptoms."

Now, the question naturally arises in the mind of the peach grower: supposing this theory to be the correct one how are peach yellows to be treated? I doubt very much if any other remedy than the present one will be adopted, but much could be done to lessen the intensity of the disease by "the destruction of the wild relations of the peach which may be found to harbor the offending creatures." To say the least, Mr. Cook's theory is a very suggestive one, and ought to receive the careful consideration of all fruit growers.

W. LOCHHEAD.

APPLE CULTURE.

PRUNING.

TO grow apples successfully requires skill and study. There are two kinds of apples, small and large, it is the latter ones which we all strive to grow. There are many ways to produce them, but pruning (not in itself alone though), is one great essential. This simple looking operation is one which is sadly neglected. Thousands of dollars are annually wasted through lack of attention to this matter. We may take a drive through an apple section and see many an orchard a veritable brush heap.

There are some who profess to understand this art, but are in reality hewers and slaughterers, slaying indiscriminately limb after limb, branch after branch, without regard to symmetry or the growth and development of

the tree and its fruit. There is a science and a philosophy in pruning which is at the same time difficult. No set of rules can be set forth, each must study for himself to master this art. The first thing to understand is the principle of vegetable growth; you must have something definite before you. When you sever a twig, branch or a limb it is necessary to know the why and wherefore, not only how it affects the present appearance of the tree but the effect in a future year.

When the tree has become so full of brush that you cannot pick the fruit, and neither plough nor cultivate the ground on account of limbs straggling along the ground, as we often see in ill regulated orchards, then it seems

the only object, chop off the limbs in order that the plough and horses may find their way and the pickers find the apples.

A case came under my notice last fall where a picker had to carry an axe in order to open up a way to pick the fruit, the majority of which were only fit for hog feed, some in fact sour enough to make him squeal. But where a tree is not as bad as depicted above there is a higher and nobler aspiration to be kept in view; that is to develop its fruits to the highest stages of perfection, to enrich our income from the sale of high colored and luscious apples. To do this there are many things to look after, but one of which is undoubtedly pruning.

Prune annually; never neglect this no more than you would neglect to pay your taxes. If you did so you would find it much easier to attend the latter obligation. Now let us go out to the orchard with our pruning shears and saw; leave your axe behind. Now before commencing see what you want to cut; see how a certain limb or branch cut will affect the appearance of the tree or the development of the remainder, or see the effect if left uncut or what would be the ultimate result in a year or two. If you think a certain limb will materially affect others or is likely to in a future year, cut it off. A mistake often made is the cutting out of the centre instead of pruning on the outside, cut off all interfering branches, leave plenty of space in which the sun, light and air may reach the centre and you will have nice choice apples in the centre.

Again, we often see large limbs utterly devoid of branches except on the extreme end, and there you will find a mass of limbs and branches like a brush heap; cut off a few of the large branches, then cut out this brush, check the growth at the end and in the course of a few years you will have a limb nicely distributed with fruiting branches from the trunk to the end. We very often see a long row of suckers on limbs. Suckers are na-

ture's protectors to the limb from the hot sun. Nature leaves man the privilege to exchange these suckers for fruiting branches. After a very heavy pruning these suckers shoot forth. But if thorough and systematic pruning is carried on yearly you will have very few.

Again we find long slender limbs extending far out without a twig. There seems nothing to prune about this, but is you cut off the end, check the flow of sap, laterals will start out and what was an unproductive limb will become fruitful. Give each branch plenty of room for development, allow the sun and light to penetrate through every twig when filled with fruit. Two limbs may appear far enough apart in the pruning season but when the fruit is on there is a mass. In pruning look to this and secure a lot of thriving light, a heavenly gift free and boundless without which higher life would become extinct. Where light and sun penetrate fungi recedes; it will prove a saving on your copper sulphate. The leaves are the respiratory organs, it has been observed that plants throw off oxygen gas in order to make this light as required; carbonic acid gas is a most necessary food for plants, it is decomposed by light, the carbon becoming incorporated with the tree and the oxygen thrown off into the atmosphere. The light helps to mature the blossom and paints the apple with its red and golden hues. What is more tempting to a purchaser than highly colored fruit. Light improves the flavor, and in order to have light in abundance, prune.

Another essential of pruning is the renewing of wood. If you would prune annually you will have better prospects of fruit annually. In all young and growing parts there is more activity within the cells. We study from botany that a plant or a tree is composed of cells each distinct and so small that there are millions to a cubic inch; within each of these cells there is a substance called protoplasm, the seat of the whole vital activity

of the cell, consequently the tree as the cells become older the walls thicken, filling up the greater part of the cavity. Now if we renew the growth of wood we will always have new active living cells to carry on the development of the tree.

Pruning is important financially. You lessen your crops by pruning as regards the number of individual apples, but we have something in size and quality to make up for it and in increase of price.

A small $1\frac{1}{2}$ inch apple takes about as much from the soil as an apple 4 inches. The seeds and pulp are the great feeders on the expensive fertilizers, whilst the balance is obtained without cost from the air and water, 84 per cent. being water. Here is an actual fact: 72 apples, respectable size, netted the writer of this article \$7.30 for the bare cost

of apples before packing. Now a package of the same size would hold 275 to 300 small apples worth about 30 cents.

Where trees have been fruitless for some years a pruning in the latter part of June will induce a growth of fruit buds. Downing says prune in winter for wood and in June for fruit. This may be so, but my experience is that by annual pruning in winter or early spring you will have wood and sufficient fruit buds. Vast sums of money are annually spent in costly pictures to adorn our drawing rooms which are occasionally seen by a few friends; would it not be advisable to spend a few dollars and convert our apple orchards into works of art which is a source of revenue.

J. W. BRENNAN.

Grimsby.

FRUIT IN AND OUT COLD STORAGE.

IN more than one item that I have seen lately in the papers with regard to fruit in cold storage, or perhaps I should say fruit that has been in cold storage, there seems to be some erroneous views held that it would be well to remove if possible. One of these erroneous views is, that if fruit is kept in dry cold storage it will not become moist on being taken out of it. Now that is decidedly a mistake, as we had abundant evidence of during the whole term of the Paris Exhibition. The system in operation there provided dry cold air, very dry, and very cold. The thermometer very frequently showed a temperature, if I remember rightly of about 38° F. with a steady current of air. I kept the atmosphere within the chamber a live one, there was nothing stagnant in it, it seemed as near perfect as it was possible a temperature and atmosphere for such a purpose, and yet, in a few minutes after coming out of the cold air chamber the fruit

was as wet as if a sprayer had played on it for some time. After our first experience, we allowed the fruit to dry of itself by letting it stand for an hour or two, it then looked better than if we had wiped it dry with towels.

Here let me call attention to the remarks of the men who were directed by Professor Robertson to examine the fruit being loaded at Montreal for Great Britain. Amongst other statements made as to condition and quality was the remark that so much of it was wet. Now if it was discharged from cold storage cars in which the temperature was say, not higher than 38 to 40 F., the moment it was exposed to the outer atmosphere on a hot summer day it would become moist and in half an hour would be wet.

For several years past I have been struck with the losses sustained by shippers from wet fruit, and I suspected that it was not so much due to the heat in the holds of the ves-

sels as to the sudden removal from a somewhat cool to a warmer and moister atmosphere. However that may be, if fine samples of fruit are taken out of cold storage and at once put before an auctioneer's audience, without having undergone some drying process, or allowance has been made for the fact of the removal from cold storage, losses will continue to be experienced by even the most careful packers and shippers. It is just possible that there is nothing new in the above remarks, and that the facts noted have been observed and commented on by others, but if so, it appears to be extraordinary that shippers have submitted to the great losses they have sustained from wet wasty fruit without murmur and without having endeavored to overcome the defect.

Just a word or two with regard to the keeping qualities of the various kinds of apples gathered from our experience at Paris last summer. The best keeping apple under all circumstances was the American Pippin. Some of the first set out on the tables were in perfect condition in September. They passed through the mid-summer's heat in

the hot Horticultural building almost without change of texture, the change was in the loss of color. All the Russetts kept fairly well, but shrivelled badly, and were consequently unsightly.

The Northern Spy is a remarkable keeper in dry cold storage, but does not last long when exposed. The Ontario kept very well and was a good deal admired. Many fruit handlers insisted that it was a small sized Spy. It certainly resembled that variety very closely; we had it from Huntingdon Co., from a farmer who had lost the name, but thought it was Hubbardston. A variety that kept remarkably well came from Montreal, named La Salle; this is a variety that has been propagated to a limited extent only, and is in a few hands. It is about like Ben Davis in size and shape, but never reaches as high a color as the best Ben Davis; it is of better quality however. Baldwin kept remarkably well as it usually does. A rather large deep red seedling from Cecil P. Newman, Lachine Rapids, was amongst the long keepers. Fallwater also astonished us by its keeping qualities.

Grenville, P. O.

R. HAMILTON.

THE BOARD OF CONTROL of the Ontario Fruit Experiment Stations met at House of Parliament Buildings on Wednesday the 2d of January. Prof. Hutt presented his report of inspection which showed that good work was being done. Apple trees tested in Wabigoon had been winter killed the first season, but another trial will be made of the most hardy varieties in the hope of finding some that will be sufficiently hardy. The Board discussed at some length the shipments of fruit to the old country. It was felt that an outlet for our surplus fruit was

absolutely necessary to maintain prices, and in view of the success of the experiments during the past year it was decided to push the matter vigorously. The Board felt it necessary to keep a continuous stream of fruit pouring into England in order to catch John Bull's eye, and therefore seek a weekly cold storage Atlantic service instead of every three weeks as at present. Hon. Mr. Dryden was interviewed, and negotiations will be opened with a view to securing a more frequent service for the growing trade.



TIMELY TOPICS FOR THE AMATEUR.—XII.

THE month of February brings to our notice the usual business heralds of approaching spring, that come to us in the shape of seed and plant catalogues. A great improvement is noticeable in the general appearance and get-up of these useful adjuncts and aids to floriculture. Not only are the species and varieties of seeds and plants offered in them of a much more comprehensive and varied type and character, but the illustrations used have a much more genuine and true-to-nature appearance than formerly. This is more particularly the case with catalogues of ornamental trees and shrubs, some of these deserving more the title of magazines of photographic art rather than that of catalogues; depicting as they do scenes of summer beauty and blossom that make them very acceptable visitors, coming at this season of the year when garden and lawn is usually covered deep in its mantle of snow, and when tree and shrub are for the most part bare, gaunt and unattractive in appearance.

Seed and plant catalogues, as well as those of trees and shrubs, also bear the same impress of improvement, showing the same

marked tendency to depict in a more natural manner than heretofore the many varieties and types of plants included under this category.

We see less and less every year of the style of illustrations or cuts representing impossible and unnatural looking specimens of plants and flowers, the originals of which could only have been purely imaginative in character. A few of these pictorial exaggerations can still however be found in the pages of catalogues for 1901.

Reproductions from photographs of actual specimens of plants and flowers, as well as a better and truer type of wood-cut, have done much toward banishing many of these made-up and unnatural illustrations from the pages of seed and plant catalogues. Reproductions from photos, if at all well executed, have at least the merit of portraying the form of flower and habit of plant correctly, two very essential points to be taken into consideration when making a selection of seeds or plants. Color photography and its successful reproduction seems to be the only feature now necessary to make its use absolutely indispensable for

FIG. 1999. SPRAYS OF COLUMBINE (*Gadsby*).

illustrative purposes in horticultural literature.

"Novelties" are a great feature in present day seed and plant catalogues. It is not always wise to discard old and tried varieties for untried and high-priced new varieties. These latter should be considered as extras, as the disappointment they often-times bring will not be felt as keenly as if they had been relied on as staple varieties.

BORDER PLANTS.

Probably at this season of the year a short descriptive list of seeds and plants, suitable for those who have a small piece of garden where a few summer-flowering plants could be grown, might be acceptable and perhaps helpful to readers of the "Horticulturist." The list will not be an elaborate one, and may not perhaps include many varieties thought to be desirable by well-posted ama-

teurs, but is made more for the guidance of those who have very little time to devote to the culture and care of flowers. Many a nice little plot of garden, or patch of lawn, could be brightened up by the addition of a mixed border or two of easily grown plants that would not only add to the attractiveness of the home, but would give a lasting pleasure that will far exceed the very small outlay required, either of money or labor.



FIG. 2000. RICINUS.

Permanent border plants, generally catalogued as hardy herbaceous perennials, are a class of plant particularly suited for busy people and their gardens, either in town or country. It is better to purchase plants of these than to rely on seed for a supply, as it takes a long time with many varieties to secure flowering results from seedling plants. Herbaceous perennials when once well established will continue to give splendid flowering results for several years with very little care and attention. Keeping clear of weeds and a light forking-over around the plants in spring, at which time a little rotten

manure might be forked in around them. About every second year some of the varieties may need dividing and transplanting so as to ensure the best results possible.

The first of these border plants to flower in early summer, almost before the last of the spring-flow-

FIG. 2001.
LILY OF THE VALLEY.



FIG. 2002. IRIS.

ering bulbs are over, is the pretty little dwarf-growing white-flowering *Arabis alpina*, or *A. albida*. When once well established it soon forms a compact mass of foliage of a silvery-grey shade, and when almost covered with its abundance of flower has a very bright and effective appearance at a time when flowers are scarce in the garden.

A plant or two of *Dielytra spectabilis* must also be included, its bright, coral-like, ivory-tipped flowers, borne in long sprays or racemes, together with its attractive foliage, as well as its hardy character and general adaptability, combine to make this one of the most useful early summer-flowering plants we have. It certainly deserves a more pleasing name than its common one of "Bleeding Heart," a name that seems a little repulsive, and one that certainly does not enhance the popularity of this grand old-fashioned garden flower.

The German and Siberian species of *Iris* are a splendid class of plants for planting in a garden that may of necessity have to be somewhat neglected at times. They succeed well in almost any kind of soil, if not too moist, and can be had in a great variety

of beautiful colors from white to pale blue and dark purple, or from pale yellow to old-gold mixed with shades and markings of brown and deep chocolate. The Japanese and Spanish *Iris* do not succeed as well under ordinary garden treatment as the German and Siberian varieties, but are perhaps more attractive when proper care and attention can be given them. Eight or ten varieties of *Iris* would not be too many if there is room for them.

One or two roots of the lemon lily, *hemerocallis flava*, and the dwarfer and darker-colored variety, *H. dumortierii*, are pretty and hardy free-flowering tuberous-rooted plants that should have a place in every flower garden.

A few plants of the perennial phlox cannot be dispensed with, either for garden decoration or to furnish a supply of cut flowers during the hot summer months.

Herbaceous peonies cannot be left out, their large showy blossoms in colors rang-



FIG. 2003. GAILLARDIA.



FIG. 2004. COSMOS (WHITE).

ing from pure white to pink and deep crimson, make them indispensable for summer decorative purposes.

The old-fashioned Columbine (*aquilegia*) must not be omitted from this list, many of the new hybrid varieties are very beautiful and effective in a mixed border of plants. These can be raised from seed and will flower the second season if sown early the preceding summer. The plant from which the flowers were taken, as shown in the accompanying photo, was one raised from an ordinary packet of seed. *Aquilegia chrysantha* (yellow) and *A. cerulea* (pale blue and white) are two of perhaps the prettiest varieties under cultivation.

Coreopsis grandiflora gives a bountiful supply of its yellow daisy-like flowers in early summer and makes a good variety in a mixed collection of plants. The double flowering *Spirea filipendula* is a low growing and attractive little flower, its finely-cut foliage being a recommendation, making it very useful to use with cut flowers in vases, etc. The two varieties of perennial *Campanulas* (*Canterbury Bells*), *C. persicifolia* (blue), and *C. persicifolia alba* (white), are hardy, showy, and very little trouble to succeed with. *Gaillardia grandiflora* with its

large, yellow margined, chocolate centered flowers, that stand boldly erect from its somewhat meagre foliage cannot be omitted, its free and continuous habit of flowering making it a valuable plant for the flower garden. A plant or two of *Rudbeckia* (*Golden glow*), are suitable plants either as single specimens on a lawn, or for planting in the flower-border, for which, owing to their tall



FIG. 2005. LARKSPUR (ANNUAL).

habit, they make either a splendid background or centre plants as the case may require. The merits of this variety of the rudbeckias is too well known to need any further comment from me. A plant of *Phalaris A. var.* (ribbon grass) looks very pretty in a mixed border and is useful for cutting. * * * Annuals often prove disappointing as the young seedlings are perhaps either burnt up by the sun if not watered carefully, or if over-watered they suffer from damping-off. One of the easiest, and perhaps one as pretty as any of the many fine annuals under cultivation is the well-known but little seen larkspur (*Delphinium*). Its erect spikes of flowers so freely produced in almost all shades and colors can be found on the plants from early summer until winter frosts, and its habit of self-sowing and producing self-sown plants the following season, makes this a very desirable annual for the mixed-border. A packet of mixed colors of Semple's branching aster will give the best results—for the least possible labor bestowed—amongst the aster family.

A packet each of zinnia, marigold, candytuft, phlox drummondii, sweet alyssum, scabiosa, salpiglossis, balsam, mignonette

(marchantia), antirrhinum, cosmos, ten week stock, centaurea imperialis (corn flower), sweet peas, and a few castor oil beans (*ricinus*), and nasturtium seeds will make a large enough collection of annuals for a good-sized border or bed. If there is one other flower that ought really to be added to this list and that does not belong to the perennial, biennial or annual classes of plants, it is the gladiolus. There is no summer-flowering bulb or plant that will give more satisfaction for the expense and care bestowed on them than will a few gladiolus bulbs. So many new and beautiful hybrid varieties of these can now be obtained, that no flower garden should be without a few of their gorgeous spikes of flowers from July until October. If the list of annuals given above is too large, the candytuft, alyssum, balsam and phlox could be struck out.

I will endeavor to give a few hints in the March issue of journal on the soil, preparation of border, etc., necessary for the successful culture of perennial and annual flowering plants.

W. HUNT.

Hamilton.

GLOXINIA HYBRIDA ERECTA.

THE *Gloxinia* belongs to a genus of Gesneriads, distinguished by its corolla approaching to bell-shaped, with the border oblique, the upper lip shortest and two-lobed, the lower three-lobed with the middle lobe largest; and also by the summit of the style being rounded and hollowed. The name was given in honor of Gloxin, a botanical author of the seventeenth century.

They are natives of tropical America, and have opposite stalked leaves of rather thick texture. and auxiliary flowers, usually single or a few together, large, the old style

nodding, and of various colors, sometimes variegated with spots.

They are among the greatest ornaments of our greenhouses, the richly colored leaves, and their ample graceful, and delicately-tinted flowers, have gained for them a prominent place among introduced plants. They are fit companions for the beautiful *Cyclamen*, and should be placed side by side in window gardening.

Here, as in many other instances, the process of hybridising has been resorted to with the best results, the older kinds with drooping flowers, have of late given place

to forms with the corolla almost regular and nearly erect, the latter peculiarity having this recommendation, that the border and throat of the corolla, to which parts much of the beauty of the flower is owing, are presented to the eye. Permit me to advise all lovers of flowers to visit the greenhouses of our florist Mr. Maxsom, who will, doubtless, find pleasure in showing the *Gloxinia* in all its beauty, and blushing with bloom.

CUTTINGS—They may be propagated by cuttings of three kinds. First, the young shoots, as soon as they are three inches long, springing from the old tubers; these are the best. Second, leaves taken off with a bud at the base. Third, by the leaves only, without a bud. The first mode may be used only when the kinds or variety is plentiful, and the bush so strong as to send out more shoots than are wanted for flowering; the second mode, when the variety is new and more scarce; and the last, when it is more rare still.

There is an advantage in the first and second mode, that the cuttings, if struck early in the year, will, with moderate care and attention to repotting, flower the same year, whereas, those struck from leaves or parts of leaves, will only form small tubers that season. Each kind of cutting requires to be put in sand, under a hand or bell glass, in bottom heat, to strike them quickly. A moist, warm heat is necessary; a moist, cold place would rot the cuttings immediately. Such species as do not make bulbs must be propagated by the first kind of cuttings.

SEED—To raise new varieties it is necessary to save seed. Choose the finest and brightest colored, to save it from. As soon as it is ripe, gather it and dry it, keep it very dry till the March following, then sow the seed on the surface of shallow pots, and let them grow there during the summer; the compost should be of a light sandy substance. Place the pots in a warm moist atmosphere, and as soon as the seeds are

up, and the plants have attained a leaf or two, transplant them thinly on the surface of shallow pots, and let them grow there during the summer. Allow to go to rest in the autumn, and keep them in the same pots through the winter, giving but little water. As soon as life appears again in the spring, pot them off singly into small pots, watering and repotting the same as the cuttings, but it is more than probable they will not flower till the second year.

SOIL—The best soil is light fibrous loam, turfy peat, half-decayed leaves, in equal parts, with a due portion of sand, well mixed, but not sifted.

SUMMER CULTURE—To have a succession of bloom, pot a portion of the bulbs in January, and place them in heat, giving a little water; temperature, 60 to 80 degrees. Pot a second batch about the middle of February and another towards the end of March. These will supply flowers for several months. Put them in pots, according to the size of the bulbs, keep them regularly watered, but never very wet. They may be syringed occasionally previously to flowering, but not much. When the blooming season is over they may be set out of doors during summer, but should be sheltered from heavy rains. They will then gradually go to rest.

WINTER CULTURE—All that they require is to be kept in their pots in a place where neither frost nor wet can reach them; yet the place should never be below 45 degrees, nor above 55 degrees. If the cold is much lower they will be apt to rot, and if higher, to start into growth.

DISEASES—The only disease that these plants are subject to is a kind of dry rot in the bulbs, which changes the substance into a soft pulp, destroying the buds, and so causing them to perish. There is no cure for it. Like many other incurable diseases attacking plant life, it makes us feel disappointed and sorry, but we have only to "grin and bear it."

WM. FOLEY,

Before Lindsay Horticultural Society.

GREENHOUSE AND WINDOW.—II.

THE GREENHOUSE.—Successive batches of cuttings can be placed in sand on the propagating bench, or in boxes or pots as required. These should be shaded on hot, sunny days. Those that have already rooted should be potted into light sandy soil, in small pots. Over-potting cuttings into large

the small pots from drying out too rapidly, or requiring very close attention in watering them, the pots can be plunged nearly to the rim in sand until the plants have commenced to root into the soil well. This plunging prevents rapid evaporation and keeps the soil in a moist condition as well as necessitating less attention in the way of watering.

Cuttings of coleus, achyranthes, alternantheras and all bedding plants should be commenced on this month. Put in plenty of cuttings of plants suitable for hanging baskets, window boxes, etc.; there is seldom too many of these either in number or variety when the time comes for using them. Seeds of pyrethrum (golden feather), and centaurea candidissima and *C. maritima* may be sown now, both of these are useful as edging plants for flower beds or borders, the last named variety being very pretty when used in window boxes, its silvery-white foliage making it very effective and pretty contrasts when planted near other plants of a deeper shade of coloring. Both of these varieties can be propagated from cuttings.

Seeds of verbenas and petunias can be sown now so as to secure good plants by bedding-out time. It is too early for sowing annual and biennial flower seeds, March or April being early enough for these. Flower seeds of almost every variety succeed better sown in shallow boxes about $1\frac{1}{2}$ inches deep. These can be filled with soil and divided into the necessary sized sections with thin pieces of shingle pressed into the soil slightly, making the boxes look like miniature fields or garden when the seeds are growing. Boxes take less room and give better results as a rule than pots. If these latter or seed pans are used, sinking them about two-thirds down into sand will



FIG. 2006.

pots is a mistake that is often made by amateur plant-growers. An excess of soil often induces an excess of water around the roots that generally proves disastrous to the well-doing of newly rooted plants. Excessive drought at the roots of cuttings is quite as hurtful as an excess of water. To avoid

help the seeds. Seeds of gloxinia, cyclamen, primula and tuberous begonias may be sown before the sun gets too powerful, even now light shading will be necessary if the seeds are exposed to the sun at mid-day.

Examine the old bulbs and tubers of summer-flowering bulbs. Gloxinias may be started now at any time. Tuberous begonias may be left another month or even more, unless early flowers from them are required. If the tubers of these latter are started into growth, it is better to pot them up at once, as checking them again when they have started growth may result in destroying the tuber. Use top ventilators only when required, and do not forget to close them early in the afternoon. Dampen the floors frequently, especially on warm, sunny days. Insect pests will require the usual remedies of fumigating and syringing, more especially as the heat of the sun increases.

WINDOW PLANTS.—The late flowering bulbs, callas, and perhaps a few trusses of geranium blooms will help to brighten up the window during early spring. Ger-

anium plants that have been flowering—or perhaps trying to flower—since autumn, should have a little liquid manure once or twice a week to help them along. This is much better than re-potting them at this season of the year. If fuchsias that have been resting during winter shows signs of growth they should be pruned back a little, if necessary, shaken out of the old soil and re-potted. Give them well-drained pots, light rich soil, and not too much root room.

A bulb or two of amaryllis, or a few tuberous begonias secured now and potted up will help brighten up the window in summer. These should be put into six or seven-inch pots if the tubers are large, as re-potting these when in a growing state is not safe or advisable. The amaryllis *Johnsonii* will probably give better results in the window than any other variety. Avoid using the bottom sash for ventilation, draughts of cold air are injurious to plants at any time.

W. HUNT,

Hamilton.

ALLAMANDA SCHOTTI.



HIS is probably the prettiest and best variety among the ten or twelve varieties of Allamandas as yet introduced to floriculture, as well as being perhaps the most suitable for growing in conservatory or greenhouse. The beautiful reddish-brown pencillings and markings to be seen in the throat of its large showy yellow flowers, together with its late flowering habit, combine to make this variety one of the most acceptable and attractive among this grand family of tropical climbing plants.

The accompanying photo of two terminal sprays of flowers shows up splendidly the rich reddish-brown markings on the primrose-yellow ground of the flower, as well as showing the profuse and continuous flowering

habit of this plant. The shoot without blossoms, seen in about the centre of the photo, and that starts from near the base of the stem bearing the large flower, on the right of the photo, shows this pushing or continuous habit of growth and flower, so noticeable in the Allamandas. The shoot mentioned has a cluster of buds at its terminal point that were not developed sufficiently to be observable at the time the photo was taken. The spray on the left however, shows plainly this peculiar habit of growth.

Most of the early flowering varieties of the Allamandas such as *A. Cathartica*, *A. Nerifolium*, *A. Nobilis*, and others, produce their wealth of golden flowers chiefly in June and July, when there is abundance of flowers



FIG. 2007. ALLAMANDA SCHOTTII.

outside, while the flowers of *A. Schottii*, that it produces in great profusion, come in most acceptably during September and October, at a time when flowers are usually scarce both in the greenhouse and garden. This late flowering propensity, combined with the distinctive markings of its flowers, make it one of the most desirable of the Allamandas for greenhouse or conservatory culture. So persistent is this variety, in respect of profuseness and continuity of flowering, that numbers of its beautiful flowers are often produced during November and December, and even until Christmas, when exceptionally fine weather has prevailed. This has frequently occurred without any additional heat, beyond that of

ordinary greenhouse temperature having been given the plant.

The Allamandas are generally classed as stove or hot-house plants, and without doubt, better results can be attained by a little additional heat beyond ordinary greenhouse temperature, but this should not deter those who have a greenhouse from planting one of these useful and desirable South American climbers, as they will repay any care bestowed on them, even under ordinary treatment. The Allamandas do not suffer from attacks of insects, another very strong point in their favor, and one that can be thoroughly appreciated by those who have perhaps had to discard many of the prettiest of our greenhouse climbing plants, on ac-

count of the destructive and persistent attacks of insect pests.

The Allamandas strike readily from cuttings inserted in sand, a little bottom heat assisting the cuttings in rooting very materially. Cuttings of the previous years growth, taken when the plants are pruned in early spring, are suitable for this purpose. Two or three joints in length, off the terminal points of the shoots, make good cuttings. These should be grown, when rooted, in pots in the greenhouse, until large enough to plant out permanently in the position they are to occupy.

The Allamanda Schottii is a strong robust grower, and will require six or eight square feet of wire trellis, to grow a nice plant on. A flat trellis work of wire about two feet from the glass suits the climbing varieties of the Allamandas nicely; they seem to succeed much better in this way, than when trained in an upright or standing position.

In planting out the Allamandas permanently in the greenhouse select a position where the young growth can be readily trained up to the trellis before mentioned. The roots of the plants are best kept within bounds and not allowed to grow down into the cold natural soil underneath the greenhouse. A strong box about 3 feet in depth made of plank, will be ample room to grow a good large plant in. This box can be made without a bottom, if it is placed on a concrete or similar floor. The latter is to prevent the roots of the plant from penetrating into the natural soil underneath. I have known plants of the Allamanda that have given no flower results worth mentioning for several years, producing nothing but rank growth when the roots of the plant have been allowed to roam freely wherever they pleased. Good drainage is very necessary for success with the Allamandas.

Put five or six inches of stone, broken pots, etc., at the bottom of the box to secure good drainage at the roots.

A good rich, light loamy compost, consisting of three parts loam, and one part each of well-rotted manure, sand, and leaf soil, well mixed, suits the Allamandas very well. Give plenty of water in summer while the plants are growing and flowering. In winter when the leaves show signs of decay give less water, only sufficient to keep the plant in a semi-dormant condition until spring. In April or May before growth commences the plant should be pruned, cutting back the growth of the previous year to within about three or four inches of the base of the shoot. After the pruning process, a mulching of dry cow manure about an inch deep may be given it. Give the plant a good watering after the mulch has been applied, and a liberal supply of water during the summer. The Allamandas are considered to be evergreen in their nature, but I have found that during the late winter season, when the plants are in a semi-dormant state, the plants may become almost devoid of foliage without injury. This is an advantage, as the plants underneath on the benches are not injured by too much shade during winter.

The flowers in the photograph are about one-third natural size. A flat, shallow Japanese bowl or a shallow jardiniere filled with the pale yellow blossoms of the Allamanda and a few fronds of ferns, or sprays of pale green foliage, tastefully arranged around and amongst the soft primrose yellow flowers, has a rich and decidedly effective appearance.

These will keep fresh for nearly a week if placed in water at once when cut and the water changed occasionally.

WM. HUNT.

Hamilton.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

FUNGI.—Our readers who have been interested in Dr. Hare's valuable articles on the mushroom, will be pleased to know that he has promised us several other articles to follow this number.

PARIS DIPLOMAS.—Some of our correspondents are asking when they will receive the diplomas awarded at Paris. Let us remind them that in the case of the Chicago Exposition it was a year or two before these came to hand, and further we are informed that each copy must be paid for.

COLD STORAGE facilities for fruit export are likely to be made accessible to all at an early date, now that success has been attained in the season just passed. Shipments by the Linde system of refrigeration sent forward under the direction of the Dairy Commissioner, Mr. J. W. Robertson, and those in Mr. Hanrahan's compartment sent forward under the direction of the Hon. John Dryden,

have arrived in Great Britain in perfect condition, where not overripe when loaded at Montreal.

FRUIT GROWERS are to be congratulated on the prospect of an immediate opening of an export trade in pears to Great Britain by cold storage, by which we may expect the prices even in our own markets will be advanced to a profitable basis.

THE COMMERCE SHIPMENT — It should have been explained on page 499, of C. H. volume XXIII, that the shipment on the Commerce was forwarded in the ordinary cold storage compartment at a temperature guaranteed by the Dominion to be constant between 36 and 40 F. The Trader cold storage compartment was the one in which Mr. Hanrahan's plans were tried. It should be explained that the low prices obtained for the first shipment of grapes under the care of Prof. Robertson,

were merely nominal, the object being to almost give away the fruit at first with the hope of ultimately creating a demand.

THE IMPORTANCE of sending out an expert lecturer to speak on floriculture or fruit culture, before our affiliated horticultural societies, was delegated to a committee of our association. The association has been furnishing lecturers for the local horticultural societies throughout the Province for some years past. These have now become so numerous and important that we are anxious to have the work recognized by the Department of Agriculture, and special provisions made for sending out an expert lecturer to speak before them. To secure an expert professional gardener to do this would require an expenditure of \$4.00 or \$5.00 a day and travelling expenses. Mr. Dryden promised to lay the request before his colleagues.

PROF. J. W. ROBERTSON interviewed a representative meeting of our fruit growers at Grimsby on Tuesday the 15th January. Several resolutions were passed covering the following requests:—

(1) That special provision be made for weekly shipments of fruit in cold storage during the season of 1901, and for transshipment from car to boat at Montreal safe from extremes of heat and cold.

(2) The rental of the cold storage building at Grimsby for further experimental work.

(3) That an expert fruit grower be sent to Great Britain during the fruit season whose duty it shall be to report minutely and promptly upon the shipments of tender fruits on their arrival; and

(4) That the export shipments of grapes be continued and extended in such a manner as is best calculated to develop the export trade.

OUR NEIGHBORS seem to be stirred up by our successful experiments in landing our

tender fruit in Great Britain, and it is evident that unless we push forward heartily and capture this trade ourselves some one else will step in and carry off all the profits. Here is an extract from the 1900 Report of Wm. A. Taylor, Acting Pomologist of the United States:—

Some of the most serious problems that confront the fruit grower are those connected with the questions of harvesting, packing, and marketing the product. This has been found especially true in relation to the export trade in fresh fruits. In numerous instances efforts to increase the sale and use of American fresh fruits in foreign markets have failed through the imperfect understanding that exists among growers, packers, and shippers, as well as transportation companies and their employees, in regard to the requirements of the markets to be supplied and the methods of harvesting, packing, storing, and shipping necessary to meet those requirements. The development of that steady demand which is necessary to build up trade is in many cases retarded by the variability in condition of consignments on arrival. A shipment which arrives perfectly sound and in every respect satisfactory is frequently followed by one or more that arrive in bad condition. The result is loss of confidence in the reliability of American fruit as a staple article of trade and a disastrous lowering of prices. For these reasons it seems highly important that provision be made for a careful study of methods of harvesting, packing, storing, and transporting fresh fruits, both at home and abroad, with special reference to the development of the export trade in them. Authority to make experimental shipments should also be provided for in this connection. In addition to the immediate beneficial effect resulting from such an investigation, it would have a direct bearing on the selection of varieties for the commercial orchards now being planted in many sections of the country, and thus exercise an important influence on the character of the commercial fruit supply of the next two decades. It is therefore strongly urged that provision be made for the prosecution of this work during the coming fiscal year.

SPIREA, Anthony Waterer, is very highly spoken in the Garden, 1894, drawing especial attention to its surprising beauty, its free-flowering habit and lasting flowers. The Garden proceeds to say, "The old Spirea Bumalda is now well-known for its hardiness, easy cultivation and neat, compact habit, and before this variety of Mr. Waterer's appeared, we valued it also for the beauty of its carmine flowers. Compared with the brilliancy and depth of color in this new comer, however, it appears poor and washed out."

UNIVERSITY EXTENSION AT CORNELL UNIVERSITY, ITHACA, N. Y.

Condensed Report of Address by John Craig, Cornell University, Ithaca, N. Y., before Horticultural Section of Association of Agricultural College and Experiment Stations, New Haven, Conn., Nov. 13, 1900.

THE University Extension movement is not new in Arts and Letters. It is, however, decidedly new in agriculture. I do not at this time intend to give you anything like a complete review of the rise and development of this new feature in agricultural education, but will rather sketch briefly the history of its growth in New York State.

THE BEGINNING.—Agricultural Extension in New York stands unique among educational movements, in that it had its beginning with the farmer. The farmer furnished the *raison d'etre*. In 1893 there was a request made to the College of Agriculture, by a group of farmers in Chautauqua County, for certain investigations and experiments in that region. This is the acknowledged grape growing section of New York, and as is common in all regions where agricultural specialities are practiced, particular difficulties had arisen. The farmers sensibly applied to the Experiment Station for help. At that time there was no money available at the Station to cover the expenses of work of this kind. The farmers were so informed. They were resourceful men and not easily discouraged. They laid their case before the committee on agriculture of the State Legislature, and obtained a special grant for the purpose of carrying on work of this character in their own and adjoining counties. This was known as the Nixon Bill for the extension of agricultural information. The money was placed in the hands of the College of Agriculture, and was administered at first by the department of Horticulture. The movement grew and flourished.

The money was used for investigational purposes, as well as for conducting horticultural schools; experiments were conducted in regions where there seemed to be special reasons for instituting them. This was in 1895. In 1896 the work broadened into a great general movement, having for its object the improvement of the farmers position. Each year the scope of the work has widened. The grant has been increased by the State until it has reached the sum of \$25,000 per annum.

The College of Agriculture has now established a department of University Extension. The work of this department divides itself into two sections. (1) The farmer and his fields. (2) The rising generation. (a) The main feature of the first division is the Farmers' Reading Course. This is the central theme around which various lines of work are grouped. The farmer cannot come to college. Neither has he had time or opportunity to become a scientific observer. Reading lessons upon fundamental subjects are distributed at intervals during the farmers' reading season—the winter. These lessons deal in a concise and clear manner with the main principles underlying a successful agriculture. They are accompanied by quizzes, which are to be answered and returned. The object is to assist farmers in thinking out scientific problems by themselves. In the lesson a problem is set, and a solution suggested. (b) Experimental work. It is our aim to make the lessons of such a character that the reading and studying of them will suggest possible experiments on the farmers' fields. It is then our pleasure to assist the farmer in planning and carrying out these experiments. In this way the farmer becomes at once an important co-operator, and an assistant to the Col-

lege of Agriculture. We have great faith in the ultimate effect and result of this Farmers' Reading Course movement, whose central idea is to educate the farmer rather than to give him more information. We are glad to say that the movement is increasingly popular among the farmers of the State. Beginning with a membership of some fifteen hundred in 1897, it has grown till it now reaches in round numbers twenty thousand. Another cheering feature of the work rests in the fact, that among our readers we have a large following of the younger men of the country. The direct result of this work is to improve methods of farming, and to awaken a desire for more wisdom, which may culminate in some instances in a decision to complete the reading course by taking the winter course in agriculture offered by Cornell University. This we look upon as the ideal method of finishing the correspondence course.

THE NATURE STUDY MOVEMENT.—The Nature Study movement is so well understood, and has become so phenomenally popular in recent years, that very little need be said on that subject at this time. It is a pleasure, however, for me to have this opportunity of bearing testimony to the zeal, enthusiasm and perseverance of the members of the staff of Agriculture at Cornell, led by Prof. Bailey, who have had the work in hand, and who have given unselfishly and unstintingly of their time and energy for its furtherance.

This movement had its germ in the thought that the place to remedy the fundamental difficulty of agriculture, as relating to the schools, was in the rural and city schools with the younger children. To ascertain the attitude of children and the teachers toward the movement, at the beginning, a number of schools were visited by instructors of the University. These visits and talks disclosed a keen desire on the part of the majority of the children and a number of the teachers for a closer touch with things

natural. Especially was this desire shown by the children. These early visits also disclosed the fact that one of the first things to be done was to educate the teacher, and here was the real work of the University. This has been accomplished in part by the publication of Nature Study leaflets, containing suggestive outlines of suitable topics for Nature Study illustration. These leaflets were at first issued irregularly. As the work increased and became systematized, it was decided to send them out at regular intervals throughout the year. They are now published quarterly, and are issued in an edition of thirty thousand.

Perhaps one of the most unique, and possibly most important divisions of the nature study work is the Junior Naturalist's Correspondence School. In this school there are marshalled a great army of little ones. They are grouped in clubs called *Junior Naturalists' Clubs*, and are scattered not only throughout the State, but throughout the United States. They have even crossed the waters and are found in Europe and Asia. The club is organized by the teacher. When properly organized each club receives a charter from the Bureau of Nature Study. The Junior Naturalist is a small monthly publication devoted to child nature study topics. Each member of every club receives a copy. There are no money dues connected with these clubs, but still there are dues. These consist of personal comments by the children of each member on the Naturalist or upon any other natural object which may have caught their attention during the month. The clubs are organized for one year, and are disbanded at the end of the school year. To illustrate the popularity of the movement I need only say that since September 1st, 1900, when the new school year was again taken up, seven hundred and fifty clubs have been organized, containing a combined membership of over thirty thousand children. There is no ques-

tion in my mind that this Junior Naturalist movement will be rich in the results bearing upon the uplifting and advancing of the farmer's position and interests throughout the country.

Such in brief are the bare outlines of a

movement whose value and worth are not to be measured by the rural achievements of this decade or of the next quarter of a century. I believe that the results are far-reaching to an extent that we do not at present appreciate or realize.

THE SAN JOSE SCALE.

DEAR SIR,—I enclose you a clipping from the *Toronto Globe* of Nov. 17, 1900, thinking that it might escape your notice:

To the Editor of the *Globe*: I have been requested to again express my opinion in regard to the San Jose scale question, and for different reasons which I have learned from experience beg to say that I still hold to my original view that this very injurious pest cannot be exterminated unless by extraordinary methods. About seven years ago I purchased four hundred fruit trees, mostly plums. At the time of planting six of these trees were not as vigorous in appearance as the balance, and I felt confident they were suffering from some disease of the bark. I immediately investigated the matter, and by close inspection found that my suspicion was correct. Shortly afterward I had a visit from Mr. Orr and Mr. Burrell, who promptly agreed with me that the San Jose scale was the cause of the difficulty.

At the end of three or four years the scale was distributed throughout my whole orchard, and the result was that the larger portion of my fruit being badly discolored wherever the scale settled upon it, was unsaleable. I have counted as many as five hundred San Jose scale upon a single leaf. The increase of the scale during the first year was small, during the second year large, and during the third year very great. Many applications made to eradicate the scale were of no avail, and those that were applied most forcibly did not even then affect the scale, but ruined the trees. I find this to have been the case, not only in my own experience but in the experimental spraying done by Government officials, and also in that done by neighboring fruit-growers, who have applied whale oil soap and other chemicals, which in all cases have failed of success. I can point out to you examples of some at any time. Within a short distance of my place there is an apple orchard of about thirty years' standing, which is so terribly infested by the San Jose scale that, may I be permitted to say, in a very few years a saleable apple will not be found upon it. Yet my neighbors and I, who have destroyed our trees, will soon have to repeat the dose of chopping out our replanted orchards, unless something is quickly done for our protection, and the only remedy I can suggest is

the use of an axe in the said infested orchard, and all others similarly affected.

Freeman, Nov. 10.

H. B. KOTTMEIER.

Mr. Kottmeier is certainly very positive in his statements in regard to the San Jose scale, and if correct, the sooner his axe remedy is applied the better in the interest of fruit growing in his neighborhood. On the other hand, I was talking to a Mr. Archibald, who manages Mr. McCardal's fruit farm near St. Catharines, this summer. I also consider this farm one of the best in the Niagara district, and one of the best managed fruit farms in Ontario. Now, Mr. Archibald is equally positive that the pest can be eradicated from any orchard by whale oil soap, if applied in the right way and at the right time. He told me that he cleaned two hundred peach trees this past summer with applications of whale oil soap, I forget at present in what proportions.

I should think from the positiveness of both gentlemen it would be very interesting to know which is in the right, and I would suggest to pay Mr. Archibald a visit and have the fruitgrower see for himself. Mr. Archibald is approachable, and would only be glad to give any information asked of him, since it is a strong statement made by Mr. Kottmeier that the spraying done by Government officials and others were injurious to the trees and have not destroyed the scale.

Yours, etc., R. CAMERON,

Gardener of Victoria Park, Niagara Falls South.

Open Letters.

The Culture of American Ginseng.

Some Accurate Information Regarding this Valuable Plant.

The subject of growing Ginseng has recently received so much attention from the agricultural press of the country and from circulars and pamphlets sent broadcast throughout the country by dealers, that hundreds of people are being induced to try its culture.

Many of the articles are written by people who have no personal knowledge of the best way to grow it or of the profits to be derived thereby. Others are written by dealers who have seeds and plants to sell, and in both instances as a rule the information is second hand and unreliable. The most extravagant figures are given showing enormous yields produced on a given acreage and Monte Cristo fortunes to be made out of a paltry investment while one lies in the back yard watching the gold dollars sprouting.

Certain dealers have sent out figures informing the public that \$5. invested in their seeds and plants will show a value of \$44,340.00 the fifth year. A million dollar bed in twelve years from a \$1000. investment is advertised on another page. A value *which cannot be obtained* except perhaps in small quantities is placed on the seeds and young plants and the ratio of increase and loss is given very accurately and more extravagantly *on paper*. Can any of these versatile writers please inform us how many turnips can be grown on a \$5 investment in twelve years, the price the roots and seeds will bring each year and how rich a man will be at the end of that period? Certainly not, and information pretending to figure it out would be absolute nonsense.

An article on Ginseng entitled "Valuable Farm Land" appeared in the St. Louis Republic a short time ago and was extensively copied by other papers in the South and Southwest. Among other wild statements the writer said that seeds bring five cents each (another writer says there is unlimited demand at twenty-five cents each) and yearling roots 20 cents each; that the eighth year an acre should produce 3,120,000 seeds which sell at five cents each, giving an annual income to the fortunate grower of \$100,000.00 from the seeds alone. He further states; "Say that a full crop of seed from one acre is available for planting. That will be 3,120,000 seeds. Allow for the loss and failure to generate or 1,120,000 seeds. This will leave 2,000,000 seed that are practically sure to germinate and create 2,000,000 roots. In eighteen months these roots will be ready for market, and can be sold direct to consumers, the present price 20 cents each or a total of \$400,000 from the Ginseng crop in eighteen months. This crop of 2,000,000 roots would require a space of approximately forty acres. One acre should produce 52,000 roots, which at the market price of 20 cents each, should, after eighteen months, bring a return of \$10,400."

Could anything be more baldly ridiculous. Let

us suppose that only 1000 gardeners had the above success as to yield. This would mean over three billion seeds put on the market each year, which at five cents each would require \$150,000,000 annually to pay for them, not to mention the value of the roots.

Suppose further that the ratio of increase both in yield of crops and number of growers continued the same for twenty-five years there would not be money enough in the world to buy a single years crop. China, the source of demand for Ginseng, would have used all its wealth in its purchase long before the period of twenty-five years had elapsed. Notwithstanding these air castles there is an enormous profit in growing the plant, but it depends on the individual grower as in any other crop. The right conditions for its culture must be supplied, either naturally or artificially and intelligent cultivation given. There will probably always be a good demand for the root at high prices, and it is an article commanding cash at all times.

These conditions for growing are readily found in nearly all the States of the Union or can be produced at reasonable cost of labor and material. They may be stated in a few words; A rich, deep, well-drained, and moist soil, containing abundant decayed vegetable matter and not too heavy or clayey. Humus or vegetable mold, obtained by using decayed forest leaves is extremely beneficial. as is also thoroughly rotted compost. Shade sufficient to keep off the direct rays of the sun is almost necessary, particularly in sections where the heat is excessive. Add to this careful cultivation and you have the secret, if there really be any, of growing Ginseng successfully. Lath covers are perhaps the best artificial shade and apple trees have been found good to keep the ground protected from the sun. At maturity the roots must be carefully and properly prepared for market, and the extra care taken to produce a fine article, clean, well graded and perfectly dry is more than repaid by the much higher price such roots will bring.

The writer who has had many years of experience growing this root will be glad to give fuller information as to the best modes to be used in its cultivation, but would warn the reader against the wildly extravagant articles that appear from time to time and which will damage rather than help an industry that really does promise most unusual returns for the labor and expense necessary to cultivate it successfully.

HARLAN P. KELSEY.

Tremont Building, Boston.

Walbridge.

SIR,—The apple you sent me for identification under date of Nov. 16th is Walbridge. This variety, as you probably know, originated in Illinois a good many years ago. It has always been recommended for hardiness of trees and long-keeping

qualities of fruit. Twenty years ago it was quite popular in the northwest prairie states. It was introduced into Canada by Charles Gibb in 1877. Trees were planted at Gibbland Farm between 1877 and 1880. On the thin, gravelly soil, characteristic of the west slope of Yamaska Mountain, the tree has done fairly well, so far as growth and vigor are concerned, but the fruit lacks size and color. At Abbotsford it has always been an undersized, flat apple, which did not color up until midwinter. Neither has the tree been productive. On the Experiment Station grounds at Cornell, where the soil is a heavy and in places a stiff clay, this variety the past season gave an excellent crop of fruit fully up to the size of the specimen you forwarded. Of course its normal size is medium or below. I do not know of any place where Wallbridge is popular, and I am of the opinion that it has been very much overrated. I enclose you a sectional outline which shows that it has a very small core.

Ithaca, N.Y.

J. CRAIG.

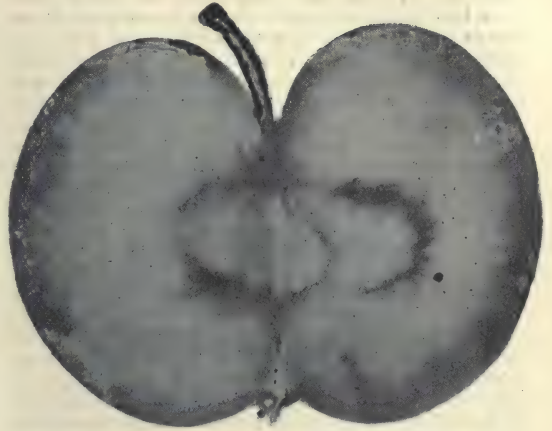


FIG. 2008. WALLBRIDGE.

Our Affiliated Societies.

LINDSAY.—The members of the Lindsay Horticultural Society are doing a quiet but noble work by encouraging the growth of flowers, fruit and shrubs and the beautifying of the homes of our citizens, and they are entitled to much praise for the good work already accomplished.

The large attendance at last Friday night's meeting in the council chamber, despite the darkness and other unfavorable conditions, was a convincing demonstration of the growing interest being taken by our citizens in horticulture and floriculture.

The president, Mr. W. M. Robson, occupied the chair; Vice-President Cathro, Secretary Framton and other officers were also present.

President Robson in opening the meeting congratulated the members and citizens on the society's increasing usefulness. They were enabled to offer very valuable prizes to members at a small cost owing to good management and the liberal aid extended by the provincial government. The premiums amounted to about \$3 worth at a cost of \$1, and there was other advantages as well. He hoped to see the membership double itself during the coming year.

After a few enjoyable selections on the graphophone by Mr. W. H. Stevens, President Robson read an extremely interesting paper entitled "Possible Achievements in Flowers and Fruits." The paper contained a reference to the career of Harry Dale, of Brampton, the greatest grower of roses in the world, who started business some 17 years ago in a small greenhouse, and now has many acres under glass. Mr. Dale has some 50,000 roses continually in bloom, and cuts 500,000 buds annually, which are all disposed of in Canada. In 1891 Mr. Dale carried off first prize at New York for cut roses, the competition being open to the world.

He employs 50 men constantly about his greenhouses, and many others at certain times. His wage list averages \$500 weekly, and it takes 2,000 tons of coal to heat his greenhouses every year. The paper also referred to the famous Montreal muskmelon, grown by specialists, and sold to leading American hotel and summer resort proprietors at \$5 and \$6 each. About 5,000 are shipped annually. The paper was received with applause.

Secretary Frampton, before reading a paper on the Gloxinia, gave a few useful hints on flower culture, and noted some of the simple causes leading to failure, but easy to remedy. The paper was very carefully written, and entered very fully into the methods to be followed in attaining success with the Gloxinia. The reader generously disclaimed the authorship, and explained that the paper had been written by a gentleman "too modest to disclose his name."

Mr. W. H. Stevens, Collegiate Institute Science Master, read a paper on the growth and care of the tuberous-rooted Begonia, which the society is distributing this year to members, among other premiums. There are two varieties, the erect and the drooping, the latter being especially suited for window culture. Those who wish to secure the plant should join the society or purchase from M. Maxsom, our own reliable florist. During the discussion that followed, Mr. Stevens said that all smooth leaved plants might be watered on the leaves, but water would discolor rough or spinous-leaved varieties. It was pointed out that many people plant seeds too deep. Mr. Maxsom said a safe rule to follow was to plant three times the depth of the seed, and in case of very fine kinds, to sow on top of the pot or to sift a little mould on top, and then smooth over.

Florist Maxsom next gave a short but very in-

interesting talk on the Cyclamen, also given as a premium by the society. It was introduced from North Italy, where it grows so freely that the hogs feed on it, but careful cultivation has improved the flower greatly. He had known a lady to plant the bulb wrong side up; there is always a small depression on the side that should be planted uppermost. The soil must be kept moist. The Begonia is a fine plant, but the Gloxinia is difficult to grow. Questioned concerning Azaleas, Mr. Maxsom said he had seen plants 40 years old at the Governor-General's house at Ottawa, but peat had to be specially imported from Wimbledon Common, England, for use of the plants. All Azaleas have a little ball of peat about the hair-like roots, and they seem to thrive until the nutriment has been exhausted. Of hardy plants we would recommend ferns, begonias, rubber plants and cyclamens as likely to survive any ordinary kind of neglect.

In reply to a question whether newly-planted shoots of Boston Ivy required particular care, Mr. Maxsom replied in the negative. It might be well to cover the roots.

The meeting was brought to a close about 10.30 by all singing the national anthem, led by Mr. J. H. Knight.

The graphophone used by Mr. Stevens during the evening was kindly loaned by Mr. R. Chambers. The numerous selections given were greatly enjoyed.—Lindsay Post.

LINDSAY.—The annual meeting of the Lindsay Horticultural Society was held Wednesday evening last at 7.30, in the council chamber, to receive the treasurer's report and elect officers and directors for the year 1901. Treasurer Frampton's report disclosed a very satisfactory state of affairs, the financial position being as follows;

Receipts, 1900.

Balance on hand Jan. 10th, 1900.....	\$117.42
Legislative grant.....	77.00
Members' subscriptions.....	114.00
Sale of plants.....	2.20

Total receipts.....\$310.62

Expenditure.

Meetings for discussion of Horticultural subjects.....	\$ 19.50
Horticultural periodicals.....	86.98
Purchase of Plants.....	94.94
Working expenses, including secretary's salary.....	25.93
Extra printing.....	6.00

\$233.35

Balance in hand.....\$77.27

KINCARDINE.—The annual meeting was held on Wednesday evening, Jan. 9th, 1901. The officers were elected for the ensuing year.

Mr. Barker, the efficient secretary of the society, presented the following report:—

In submitting the fourth annual report he congratulated the society on the marked progress which it has made during its four years of existence which commenced with a membership of fifty-nine and has now attained a growth of ninety members.

For the information of the members and others the secretary prepared a statement showing the exact number of plants, bulbs and fruit trees which have been purchased by the society and distributed to the members last year in accordance with the selections made by them are as follows:—

Collection 1.—27 azaleas, 27 gloxinias, 54 begonias.

2.—14 *Fosterina* palms in pots.

3.—6 palms, *Phoenix reclinata*; 18 begonias, red white and yellow.

4.—10 Boston sword ferns in pots, 40 carnations.

5.—52 dahlias, assorted colors; 13 gloxinias, 13 new Russian violets, 39 single tuberous begonias and 39 double.

6.—20 fuschias, 20 geraniums, 10 Russian violets 20 dahlias, 20 chrysanthemums, 20 carnations.

7.—42 double hyacinths and 42 single.

8.—6 cannas and 40 gladioli.

9.—12 flowering shrubs.

10.—10 cherry trees, Ely, Richmond and Black Vartarian; 10 peach trees, Crosby and Early Crawford.

11.—36 raspberry bushes, 6 of each of six kinds.

12.—110 currant bushes, two years old, first-class, of the following varieties: Champion, Black Naples White Grape, Fay's Prolific and Cherry.

In addition to the above, the Fruit Growers' Association have presented annually to the members of the horticultural societies of Ontario a premium such as newly introduced pear, plum, peach, also small fruits such as the best varieties of raspberry and currant, besides ornamental vines, shrubs and roses. Our members have also received from the above association the annual report of their proceedings—a neatly bound volume containing most valuable instructions and information to fruit growers in Canada, and then each member gets the Canadian Horticulturist magazine every month during the year, and we have no hesitation in declaring this monthly visitor to be the peer of its kind published in Canada, giving such plain instructions regarding the cultivation of fruit and flowers, which make it indispensable to our members and worth much more than our small membership fee of \$1.

Our society last year was in a position to give material aid and encouragement to the Juvenile Flower League of Kincardine by purchasing for them, with their own funds, plants and flower seeds at lowest possible price by which, said League was enabled to make a highly creditable showing in conjunction with our own exhibition last fall.

May we not hope for even greater success in this the first year of a new century? We bespeak the hearty co-operation of every lover of flowers and fruit in Kincardine.

JOSEPH BARKER, Secy.

ORILLIA.—The annual meeting was held on Wednesday evening January 9th, in the Council Chamber. The President, Mr. G. I. Bolster, occupied the chair. The financial statement for the past year, duly audited and certified by Messrs. J. B. Marston and G. H. Clark, was presented by the Secretary-Treasurer, Mr. C. L. Stephens. It showed amongst other matters that \$147 had been paid out for prizes awarded at the fall show, with a balance remaining on hand at the close of the

year of \$69.88. The amount paid for prizes was larger by \$18 than that paid in 1899. The entries for 1900 were 635, an increase of 37 over the previous year. On motion of Mr. E. B. Alport, seconded by Mr. Geo. Street, the report was accepted and ordered to be forwarded to the Department of Agriculture. A vote of thanks to the officers of last year was passed. An interesting discussion, in which many members took part, followed, upon the question as to whether it was desirable to continue to act upon the old lines of co-operation with the East Simcoe Agricultural Society in holding a fall show; or to cut away from that society altogether, and devote the resources of the town society entirely to town objects, such as beautifying of lawns and gardens, holding of summer shows, and other directions in which valuable work might be done. The consensus of opinion seemed to be that it would be hardly be advisable to withdraw at present from the former methods, particularly as it was pointed out, a summer show was impracticable owing to there being no hall in the town suitable for such a purpose. At a meeting of the Directors, which immediately followed, Mr. C. L. Stephens was re-elected Secretary-Treasurer for the fourteenth time.

On motion of Mr. Stephens, seconded by Canon Green, it was resolved that during the ensuing year regular monthly meetings of the Directors shall be held, and the second Tuesday in each month at 8 p. m. in the Council Chambers, were fixed upon for time and place. Mr. Secord introduced to the meeting Mr. G. B. Wyllie, District Passenger Agent of the Illinois Central Railway, as an old friend and schoolmate who was visiting him. Mr. Wyllie having expressed pleasure at being at being present and interest in the discussion which he had listened to, gave a short address on the subject of Canadian Summer Resorts, referring chiefly to Orillia and the Muskoka District. He promised a very large influx of visitors next summer from the Pan-American Exposition to be held in Buffalo, and hoped that Orillia would be prepared to receive a goodly number. He emphasised the importance of well-kept grounds and tidy streets as an attraction to tourists. A vote of thanks was passed to Mr. Wyllie for his entertaining and instructive address.

HAMILTON.—The annual meeting of the Hamilton Horticultural Society was held in the Hamilton Scientific Association rooms on the evening of Wednesday, January 9th, at half past seven o'clock. The Treasurer's report showed a balance on hand of \$213.00. \$162.00 were received in members' fees during 1900. \$99.00 were expended in purchasing and distributing seeds, plants and bulbs. With the object of cultivating a love for horticulture \$46.00 worth of plants were distributed among the scholars of the public and separate schools during the late spring, and prizes of plants and bulbs were awarded in October for the best grown specimens from each school, much interest being taken in the competition by parents as well as children. The thanks of the society are due E. G. Brown, John A. Bruce & Co., Walter Holt and Messrs. A. Alexander and William Hunt for kindly donating the prizes. Nine open meetings were held for hearing lectures and the reading of papers. A public exhibition was held in June. The following officers and directors were elected: President, A. Alexander; First Vice-President, F. H. Lambe; Second Vice-President, J. O. McCulloch. Directors: James Anderson, S. Aylett, W. F. Burton, John Cape, J. J. Evel, Wm. Hunt, J. Kneeshaw, Rev. A. McLaren, William Wilson; Auditors, Fred. B. Greening, M. H. Little; Secy-Treas., J. M. Dickson.

The Perth Horticultural Society held its first annual meeting in the Council Chamber, on the evening of Jan. 9th, at which the officers for the ensuing year were elected and considerable business done. The meeting was adjourned until Tuesday, Jan. 29th, at eight o'clock in the evening at the same place, for the purpose of adopting by-laws, etc. This adjourned meeting should be well attended as by-laws are important and other business will be brought up.

PICTON.—The annual meeting of the above society was held in Shire Hall on Wednesday evening, for the election of officers for the ensuing year, and other business.





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FIG. 2009. AVENUE NICOLAS II, PARIS, FRANCE.

THE CANADIAN HORTICULTURIST



** MARCH **

HORTICULTURE IN PARIS.—I.

THAT the French are a flower-loving people, one realizes in a very short time spent amongst them. The large numbers of people seen hawking flowers in the streets; the large number of flower shops, which are almost as numerous as bread shops or dairy shops, would convince the most sceptical of that fact.

Reaching Paris late on a Saturday night in the end of March, in a short walk in the streets, flower sellers were met about every acre, and they were doing a brisk business. violets, primroses (wild), daffodils, and lilies of the valley, lilacs and roses, with some cytisuses, or kindred plants with yellow flowers, formed their principal stock in trade. Needless to say that at that date the lilacs and roses were forced. The French people take a special pleasure in lilacs, of which they possess a very large number of varieties, many of them of great beauty. In the gardens, on the outskirts of the city, we see them in large numbers, and we find the spikes of cut flowers throughout the entire season. They not only force them, but also retard them. As late as

October large quantities of them were still in evidence.

The Paris houses are always well supplied with flowers. They are daily renewed, and one sees the withered plants that have served their purpose, thrown out into the streets with the other rubbish, for the scavengers to carry off during the night or early morning.

The Paris dwelling houses open into court-yards; these court-yards, when not paved, are usually planted with a nice assortment of the better class shrubs—laurels, rhododendrons, azalea mollis, magnolia, &c., or, if paved, the plants are set around in large tubs or boxes, and may consist of palms, Araucarias, Aucubas, large ferns, and other plants of that character that may be frequently changed.

One of the climbers that one often sees is the Wistaria. In the early summer it bears hundreds of long, graceful, pendant clusters of blue, or white, flowers. Another beautiful climber is the Bignonia radicans, and almost everywhere the common and large-leaved ivies are seen, less frequent are the clematises, the ampelopses, and the

various honeysuckles. Amongst the large plants that are set out in front of the dwellings and restaurants in the streets are several kinds of box, privets, *Euonymus*, *Laurustinus*, standard roses, laurel, etc.

PARIS PARKS.

The parks in Paris generally contain large and fine collections of plants of all kinds, forest trees deciduous and evergreen, shrubby-herbaceous plants, bedding plants, annuals, and bulbous plants. The apparent effort seems to be to keep up a continuous display of flowers from earliest spring to latest fall, and from week to week one observes the flower beds completely transformed. The early flowering bulbs with which the plots are filled in the fall, are succeeded by pansies, hepaticas, and other low-growing early flowering perennials; these, are in turn, succeeded by annuals in full bloom, or some of the bedding out plants. This sort of flower garden was seen at its best within the exhibition grounds, in the concours made by the large seed-houses and floral establishments. These concours took place every fortnight, or three weeks, and at each successive one, every bed was completely changed. Bulbs of various kinds—hyacinths, tulips, scillas, &c., in full flower, were set into the plots, pots and all, and at the next concours were replaced by *calceolarias*, or *cinerarias*, or *geraniums*; on the next occasion these were replaced by bulbous *begonias*, or *cannas*, or *chrysanthemums*, and one sort of annuals was succeeded by another, or by mixtures of annuals or herbaceous plants. Our native perennial asters were very largely used and made a very beautiful display. In the same way, one bed of shrubs succeeded another. Lilacs in pots and *spireas* of several families were followed by *rhododendrons*, *Azalea mollis*, *Ceanothus*, *Althea frutex*, or *kalmias*, and so the

transformation went on. Many of our own common native shrubs, dwarf chokecherries, *Pyrus arbutifolia*, *Spiraea salicifolia*, *viburnums*, &c., taking their place with others in the general transformations. Canadian ferns, too, were largely used in permanent beds and clumps.

Amongst the annuals used in these renewals, were the everlasting *acrocliniums*, *rhodanthe*, *helichrysum*, and the feathered *celosia*. The *campanulas*, chiefly the dwarf species and varieties, *Carpathica*, *Sibirica* and *Venus looking-glass*. Chinese asters were very largely used, so were the dwarf blue *ageratums*, *aubrietas*, *brachycomes*, *browallias*, *centaureas*, *forget-me-nots*, *asperulas*, *larkspurs* and *whitlavis*. Amongst the most interesting yellows were the *Gamolepis*, *Tagetes*, *Linaria multipunctata*, pansies, *antirrhinum*, dwarf *erysimums*, dwarf *zinnia*, *Tagetes signata pumila*, French and African *marigolds*, *Matricaria*, golden ball. Small white flowers that lent themselves readily to that kind of work were the sweet *alyssum*, *Arabis alpina*, *candytufts*; pansies, the large flowered daisies, dwarf asters, *godetias*, *phloxes*, the *Gypsophila muralis*, *Saponarias*, *schyzanthus statice*, *Humea elegans*, with many of the annual grasses, furnished light feathery effects, while *Virginian stock*, *Nemesia floribunda*, *silene*, varieties of *petunia* and of dwarf compact crimson *phlox drummondii* made dense rosy crimson beds. *Amaranthus bicolor*, *tricolor*, and *Melancholicus ruber*, supplied beautiful foliage.

The *godetias*, especially the varieties of *Whitneyi*, made beds that at a short distance were mistaken for large flowered *geraniums*. Some of the most beautiful masses of blue flowers were made of the single blue aster, *Callistephus hortensis* the original of all the immense number of varieties of the Chinese aster, and for fall



FIG. 2010. VIEW IN THE TROCADERO GARDENS (RUSSIA-IN-ASIA), RUSSIAN PAVILION AND DUTCH INDIAN PAVILION TO THE LEFT.

flowers the improved varieties of many of our native wild asters were unrivalled; the effects were always most pleasing.

The campanulas, especially the canterbury bells, were very largely used, and with good effect. A collection of forty varieties, that came all the way from Russia, was very much admired. The bright varieties of *Tropeolum lobbi* made glowing masses that rivalled the large-flowered tuberous begonias. Plants of the sunflower family *helianthus*, *helenium*, *helianthella*, *rudbeckia*, *doronicum*, *echinacea*, *coreopsis* *gaillardias*, were in abundance at all the concours. The *Aquilegia cœrulea* hybrids, and *glandulosa*, were very beautiful. The aster (perennial), *alpinus speciosus*, was one of the most admired plants during the early summer months, flowers of a

lovely violet and very large and numerous.

Roses in masses were planted by the thousand, standards, half-standards and dwarfs, and as they were chiefly hybrid-perpetuals, Teas and Chinas, they made a splendid display throughout the season, and were not disturbed. These were furnished by the large floral establishments and each mass bore a neatly printed advertisement of the grower. In the same way large clumps of conifers were supplied, each plant carefully named, and as the variety was very large, and the specimens well grown, the whole formed a beautiful object lesson.

Large plots of climbers in the same way, clumps of evergreen shrubs (not conifers) deciduous shrubs, &c. Clumps of purely American plants—rhododendrons, azaleas



FIG. 2011. ALEXANDER III BRIDGE, PARIS.

andromeda, gaultheria, kalmia, sedums, &c.

PARIS SQUARES AND PUBLIC GARDENS.

Thesquaresin Paris generally contain large and fine collections of all kinds of trees, shrubs, and herbaceous plants, that will endure the climate, and it is astonishing what a large number of varieties are found in them. In the Jardin des Plantes is found the famous old Cedar of Lebanon that was brought to France in 1636 by Bernard de Jussieu, and also the first Robinia pseud-acacia that was brought to France from America in 1600. The former a grand old tree in perfect health and preservation. Of the latter only a sucker remains, but an imitation of its trunk is made in plaster.

In the Jardin des Plantes, and buildings adjoining, the School of Botany meets to hear lectures and to receive practical

demonstration in botany and kindred subjects.

PARIS STREETS, ETC.

The streets and highways in Paris and throughout France are generally planted with forest or fruit trees. We had the pleasure, at the Pomological Congress, of listening to a very interesting debate on the subject of "forest trees versus fruit trees for country roads." The fruit trees carried the day.

In Paris the tree most frequently seen in the streets is the horsechestnut, the common, the double, and the crimson. In some districts the catalpa is pretty numerous, and occasionally the ailanthus is found, and the Judas tree. A few elms and maples, too, are seen in places, but next to the horse chestnut in numbers comes the American plane tree with a few of the

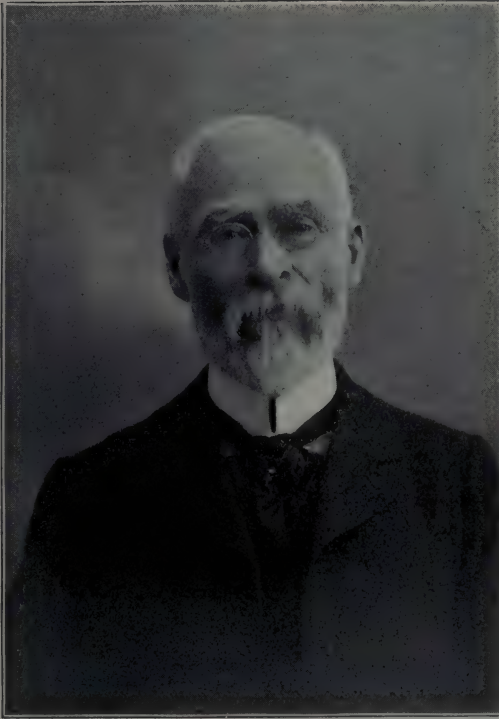


FIG. 2012. MR. ROBT. HAMILTON,
Superintendent of Horticulture for Canada.

Eastern plane. This is a very interesting tree with its innumerable little seed balls tangling by a slender thread. Along the River Seine and the canals the black poplar is everywhere met with. Rare specimens of lindens and locust were seen and also the *Salisburia* or Maiden-hair tree.

In private grounds that may be seen from the streets, the variety of trees is, of course, very much greater than in the streets, inasmuch as there is no restriction as to size, character, &c., so that one sees weeping trees of all kinds—maples, willows, elms, birches, cherries, ashes, beeches, mulberries, locusts, lindens; cut-leaved trees of as many families—crimson and purple leaved trees, variegated leaved trees; conifers; cedars of Lebanon, hemlocks, balsams, spruces, *Wellingtonia gigantea*, &c. Trees with round heads, fastigate

trees—that seem to wish to hold communion with as few as possible of their fellows and aspire heavenward, Lombardy poplars and Bolleana poplars, pyramidal birch, monumental elm; small flowering trees like the Golden Chain (*cytusus*), the Japan lilac, the Crimson Double Thorn, magnolias, mulberries, and double-flowering apples. Of flowering shrubs the variety is practically endless. Rhododendrons are seen ten feet high and fifteen feet diameter, a solid bouquet and *kalmias* almost as large; *euonymus*, *hibiscus*, *hydrangeas*, silver bells (*halesia*), *azaleas*, *ceanothuses*, *Azalea mollis*, &c., to say nothing of the *Weigelias*, *Philadelphus*, honeysuckles, *spiraeas* and lilacs that we know so well here.

HORTICULTURAL EXHIBITS.

One feature of the Horticultural Concours that struck us as somewhat strange was the fact that all the exhibitors were professionals. There were no exhibits from private gentlemen's grounds, nor did there seem to be anything from market gardeners. Large establishments, syndicates, and horticultural societies were the only concurrents or competitors.

The Horticultural Society of France is said to be very rich. The building where its members meet for the transaction of business—a large magnificent affair, said to have cost a half million francs, and which yields an annual revenue of twenty thousand francs—is the property of the Association. The two horticultural pavilions of the late exhibition, two magnificent structures, are also said to belong to this association.

Yet, when all is said of the grandeur of the late exhibition, it must be admitted that, when we consider the wealth of France in everything horticultural, together with its population and wealth, our Ottawa, Toronto, or Montreal exhibitions, are comparatively much better.

Grenville, Que. ROBERT HAMILTON.

QUEBEC FRUIT GROWERS.

THE eighth annual meeting of the Pomological and Fruit Growers' Society of the Province of Quebec was held on the 31st of January and 1st of February at Muir Hall, Huntington, Que. Morning, afternoon and evening meetings were held. The meetings were well attended and a great deal of interest shown, and different subjects were well discussed, many in the audience joining in the discussions.

The meetings was ably conducted by the President, Dr. H. W. Woods, St. Johns, Que. The society was particularly favored by having such a large number of professors to attend their meeting.

Mr. J. M. Fisk, Abbotsford, gave an address on Horticultural Exhibitions and advised the adoption of judging by points. In the discussion that followed single judges were thought advisable, and the system of judging by points was thought to work well on single plates but at times lead to confusion in collections.

Dr. Saunders, director Experimental Farms, Ottawa, gave a very interesting address showing the important position the fruits of Canada have taken in all the large exhibitions of the world from the Centennial at Philadelphia in 1876 to the Paris Exposition of last year.

Dr. Fletcher, Entomologist Central Experimental Farms, in a well chosen address, showed the value of the honey bee to the fruit growers as a pollinizer, and explained why the bee did not injure fruit, and that there had never been a case known where the bee

had broken the skin of the tenderest fruit. Mr. Selwin, of Ottawa, also gave a paper of great value to the bee-keeper. Mr. Hamilton, of Grenville, and Mr. Shepherd, of Como, closed the afternoon meeting of the second day with well chosen remarks on cold storage and the possibilities of the fruit grower as an exporter under more favorable conditions.

The feature of the evening was an illustrated address by Prof. John Craig, Cornell University, Ithaca, N. Y., who showed some excellent lime light views of some of the most profitable orchards in western New York and the views of several packing and evaporating plants, closing with a photo of the Directors of the Quebec Association taken at the time of the first meeting of the board.

Prof. Waugh, Horticulturist, Burlington, Vermont, spoke of the selection of varieties and drew attention to the Fameuse type as being of special value as grown in Quebec.

Mr. R. B. Whyte, of Ottawa, in addressing the meeting showed the advantages to be derived from Local Horticultural Societies being connected with the Provincial Society and cited the benefits gained by affiliated societies in Ontario.

The subject received great attention and was discussed at some length, and it is probable that in the near future steps will be taken to form affiliated societies on the same general plan as in Ontario.

Your representatives were very cordially received and entertained while at the meeting. HAROLD JONES, Maitland.

THE RICE HARVEST IN ONTARIO.

RICE LAKE is one of the larger lakes of the Trent Valley, being about twenty-two miles long and from one to four miles wide. It is between the Counties of Northumberland on the south and Peterboro on the north. A number of small streams empty into it, also some larger, as the Otonabee, Indian and Ouse.

The lake itself looks beautiful from almost any point, especially from Hiawatha, Keene, Foley's and Birdsall's on the north, and from Benally, Gore's Landing, Harwood and McCracken's on the south shore.

There are a number of islands in the lake, some small and others large, Whites having 300 acres of good land.

Then there are bays formed by points of land that jut into the lake and are very beautiful. Perhaps the most interesting point of land is the one known as Desangs or Roaches. It is the one that in the long, long ago the Indians chose as a place for worship, building the wonderful serpent mound that a few years ago was recognized by Mr. David Boyle, of the Canadian Institute.

For years and years the point had been a favorite picnic ground with the inhabitants of the north and south shore; the same beauty of location attracted them that had the aborigines before the time when Champlain and his party camped there when they were exploring the Trent waters. Who will gainsay the thought that localities have

their own spirit, attracting or repelling humanity.

The object of this paper is not to enter into all the beauties of and around Rice Lake, and there are many—for truly the country north of the lake may justly be called the Midlothians of Ontario—hill and valley, no matter where the eye travels. From some of the hills views extending thirty miles are at the disposal of the gazer; from one point on a clear day seven town-



FIG. 2013. GATHERING RICE.

ships can be seen. But this is not the lake, it is lake, stream and land.

Rice Lake is noted for its sport, consisting of fishing and shooting. The fish that are trolled and angled for are bass, black and yellow; the game hunted are snipe, plover and ducks. Of the latter there are the summer and fall ducks, each good in their season.

The food of the fish is supplied largely by the beds of wild rice, or known as black

rice, and it is on these large fields of rice that the ducks feed during the Summer and Fall. These beds or fields of rice, some a few acres, and others of two or three hundred acres in extent, not only supply fish and fowl with part of their food, but also men, women and children with part of theirs.

Many consider the native rice to be superior to the imported in point of flavor.

growing in water from two or three feet to six or eight in depth, if the season is a dry one, the crop is sure to be light, but if showery, then the yield is heavy. Those not acquainted with this fact laugh at it; still, laugh as one may, the fact remains—little rain, little rice; just enough rain, a good yield.

The manner of harvesting is peculiar.



FIG. 2014. THE ENCAMPMENT ON RICE LAKE, SUGAR ISLAND.

The harvesting of the rice crop is entirely in the hands of the Indians, descendants of the ancient Ojibway tribe, there being a reservation at Alderville and another at Hiawatha.

There are two leading varieties of rice, an early and late, the former maturing in August, the other late in September.

Strange to say that the rice crop, though

Being in the water, neither reaper, scythe nor sickle are used, but a canoe and two occupants, generally an Indian and a squaw, the one paddling the canoe through the dense mass of straw, the other pulling the straw over so that the heads of rice are fairly over the canoe, then with a stick the grain is beaten out or off into the bottom of the canoe; this is done from one side and



FIG. 2015. SCORCHING THE GREEN RICE SO AS TO GET THE HULLS OUT.

then the other, then it is push along John for more straw with rice on it.

Of course a good deal spills over the side of the canoe; it forms the seeding for the next year, also is the source of food for the Fall water fowl in the shallower water.

When the canoe is filled by this primitive procedure it is taken to the camp where it is then treated, or manufactured, into an edible shape or state. The first thing done now is to have a large kettle, like a large soap kettle, with a slow fire under it. The rice is put into the heated kettle in small quantities, being continually stirred so as to parch the outer covering but not burn the grain. This requires experience and an adeptness only obtained by patient practice.

The next stage of manufacture is to use another kettle somewhat larger, into which the parched product is placed. Now the brisk time has arrived, for a lusty man or youth steps in and to a humming melody he waltzes to right, then to left, all the time having a firm hold of a limb of a tree, or a pole supported on two forked sticks driven firmly into the ground. This frees the parched and loosened hull from the grain. The last stage of manufacture is the winnowing of the

grain from the chaff and is accomplished much in the same way as Araunah did on his threshing floor in the period of the undivided kingdom of Israel—i. e., the chaff and grain are thrown into the



FIG. 2016. CLEANING THE RICE FROM CHAFF BY TOSSING IN THE WIND.

air; away goes the chaff and down comes the rice.

Not all the gathered rice is manufactured. A large amount is sold as green rice and is shipped to other points to stock small lakes with rice for the water-fowl, and some is exported for the same purpose.

Usually six to seven weeks are occupied in the gathering of the crop. 'Tis said that away from its native place that the wild rice is a shy grower, many finding it difficult to get it accustomed to its new surroundings. After the fall gales in those places in the lake that in summer looked like beautiful meadows, not a speck of rice straw is to be seen, it having all gone to the bottom.

The story is told (of course it was long

ago, all good stories are of the long ago) of a man who was going up Rice Lake in one of the barges, who, seeing the beds or fields of rice, asked what it was. On being told it was rice growing in water he supposed that they were guying him and insisted on the barge going into the edge of the field so he might show them he was not as green as the stuff, for he would walk on that elegant meadow as fast as the old tub could go. He made the essay and was right glad to have a hand to help him on board. While still dripping and the water running down his face he was heard to say, "Who'd have thought it was so deceitful."

DR. HARRISON.

Keene.

SAN JOSE SCALE.—The Committee, sent by our Association, interviewed the Hon. John Dryden on the 2nd of February. There were present Messrs. Murray Pettit, Winona, Chairman; W. M. Orr, Fruitland, Major Hiscott, ex-M. P. P., Niagara; Dr. Jessop, M. P. P., St. Catharines, and Mr. George E. Fisher, Freeman, the Government inspector.

The following recommendations were submitted by the deputation:

(1) That a system of inspection be carried on in all suspected districts, with a limited number of suitable assistants.

(2) That every grower in suspected districts be required to inspect his own trees during the months of November and December in each year, and to report to the inspector, not later than the 1st day of January following, on suitable blank forms to be furnished, that the work has been carefully performed, together with a statement of the condition of the orchard at the time of inspection.

(3) That as the work of treatment is still in an experimental stage the Government should make suitable material, both whale

oil soap and crude petroleum, available to the people on the same terms as supplied to growers last year.

(4) That in isolated sections where the scale is found to a very limited extent the treatment of the trees be carried on by and at the expense of the Government under the direction of the inspector.

(5) That with regard to nursery stock, the most careful measures be continued to properly protect the purchaser from the infestation from this source, and to this end all fumigation be done under the supervision of the Government, and official certificates be issued to accompany each shipment.

Hon. John Dryden, in reply, said he was anxious to do all he could for the fruit-growers. He suggested that in order to secure the enforcement of precautionary measures the association appoint a committee of three to co-operate with the department, particularly in the placing of suitable spraying material within the reach of the public. It is probable that some action will be taken at the Legislature this session to prevent the further spread of the scale.



FIG. 2017. HORTICULTURAL BUILDING.

OUR FRUIT AT THE PAN-AMERICAN.

OUR readers will be pleased to learn that the request of our Association for a good exhibit of our fruits to be shown at Buffalo this summer has been granted. Mr. C. C. James, Deputy Minister of Agriculture, Toronto, has been constituted honorary Commissioner for Ontario, and he has already in cold storage in Buffalo 180 bushel cases of choice Ontario apples, in readiness for the opening months of the exhibition. He has also secured a liberal amount of space, and the officers and members of our Association, desiring to furnish fruit for this exhibit, will have every opportunity during the summer. In this connection our readers will be interested in a view of the Horticultural Building, which is truly a fine work of architecture.

The Pan American Magazine speaks of this building as follows :

Horticultural exhibits at Buffalo will have a beautiful setting in and about an exceedingly handsome building 220 feet square. The height of the building is 236 feet to the top of the lantern, and the general proportions are of commanding grandeur. Situated in a position of great prominence on the western side of the ground, the approach from the east is through the esplanade, past

the basins of aquatic plants, the fountains and the great urns containing beautiful tropical foliage effects ; up the curved incline which is bordered by many odd varieties of fruiting trees and shrubs, to the magnificent doorway which is the subject of the accompanying illustration. Probably no horticultural exhibit has ever had such elegant and appropriate surroundings and no former display has been so well worthy of it.

The Horticultural Building is connected by semi-circular conservatories with the Graphic Arts Building to the north and the Mining building to the south. These conservatories are themselves very beautiful architectural features of the Exposition and the fine floral displays in them will enhance their attractions to visitors. They connect the three buildings in this group but are distinct and separate buildings, having their own individual style and their exhibits of entirely different character. The court upon which the three buildings of the group face contains one of the superb Esplanade fountains.

Fruits of all kinds will be placed on exhibition during the summer. Much of the fruit will be preserved in cold storage, though the exhibit will change as the sea-



FIG. 2018. THE ENTRANCE.

son advances and the different varieties ripen. A number of states have made arrangements to provide collective exhibits

that will properly represent the horticultural products of their particular section. California is arranging for a special exhibit of the wonderfully diversified fruit productions of that state. Other states are taking the matter up with the prospect of making the horticultural exhibit the most complete ever attempted. The same care that characterizes other sections of the Exposition will be given the Horticultural division with the view of making it representative as to character rather than exhaustive in detail.

Large as the Horticultural Building is, it will not contain all the horticultural exhibits. A plot of ground has been provided extending across the west front of the building on the opposite side of the grand canal, and extending south as far as the Elmwood gate. This plot has been under course of preparation for many months, and will present a restful attraction in pastoral contrast to the hum of busy, energetic action which will be so characteristic of portions of the Exposition.

POINTS IN PRUNING.

KNIFE or saw should never be used on a fruit or ornamental tree unless there is positively good reason for so doing.

Train all trees while young with a central leader or main shoot, and never allow two main branches to grow in such a way as to have the weight of the tree come upon a fork of the main trunk.

When two branches cross so as to be injured by rubbing together, the weaker of the two should be cut out.

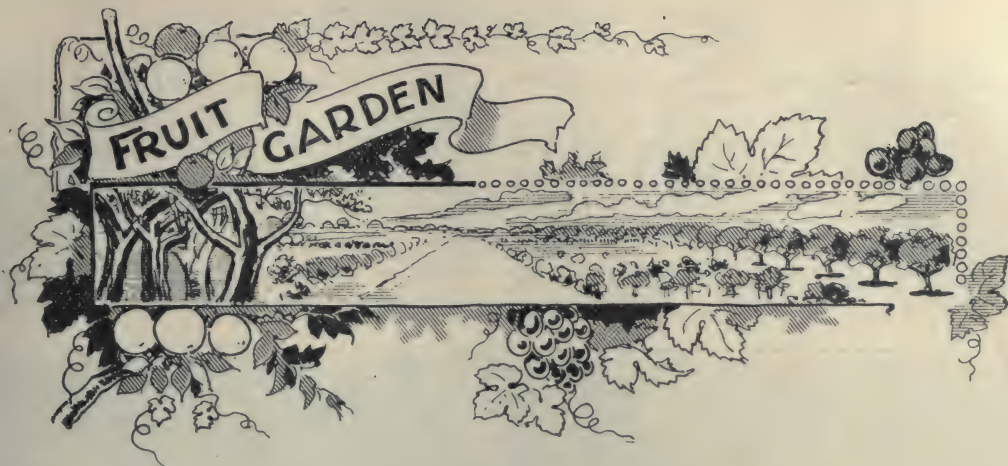
If large branches are to be removed, make the cut on the middle of the enlarged part where it joins the main branch or trunk and not quite in line with the face of the main branch or trunk.

Paint all wounds above $\frac{1}{2}$ inch in diameter with linseed oil paint, gas tar or grafting wax.

Never cut away the main branches of a tree if it can be avoided, but thin out the head, when it becomes crowded, from the outside. This can be quickly done with the pruning hook on a long pole, and little or no injury will result, while if the large branches are cut from the trunk the tree is weakened and soon dies or is broken down.

Cut off dead branches as soon as discovered and cover the wound with paint to prevent further decay.

In training young trees, start the branches low, the trees will grow better, the thinning and gathering of the fruit will be more easily done and the cultivation can be as well and cheaply done with the modern Acme or spring tooth harrow and weeder as if the head was higher, while the trunk of the tree and the ground under it will be better than if more exposed.—*Prof. S. T. Maynard.*



HILLCREST ORCHARDS, NOVA SCOTIA.

SIR,—I have reached Pictou (February 3rd), on my way to Prince Edward Island (where there is a series of meetings next month), after attending the U. S. Fruit Growers' Association last week. The Atlantic Transportation problem, and the proposed Agricultural College were two things which were given great prominence at the meetings.

While at Wolfville I had the opportunity of visiting the fruit farm of Mr. Ralph S. Eaton, which I am sure you have read about. There is no orchard in Canada that I have seen, where, in my opinion, the prospects were so bright and the possibilities so great as in this finely kept orchard; the trees have made wonderful growth in the time they have been planted, and are exceptionally symmetrical. I was informed that this orchard land, which thirteen years ago was valued at \$10.00 per acre, is now considered to be worth \$1000.00 per acre.

Thinking that an account of this orchard might prove acceptable to you for the Horticulturist, I obtained from Mr. Eaton some photos showing some of his trees and the fruit grown on them. I also enclose extracts from newspapers giving some account of the history of this orchard and the way it is laid out.

W. T. MACOUN, Ottawa.

The orchards of Mr. R. S. Eaton of Kentville, N. S. are of interest to fruit growers for several reasons, viz:—(1) There is nothing finer in the whole of Canada: (2) artificial fertilizers, chemicals, clover and tillage have depended upon solely, no stable manure: (3) no attempt is made to crop the orchard: (4) Mr. Eaton has succeeded in making his trees pay their way at a very early age: (5) Mr. Eaton has adopted new methods of tillage: (6) an attempt has

been made to arrange the orchard upon a scientific basis with a view to economy.

Mr. Eaton's plan of orchard is to plant standard apple trees 33 feet or two yards apart, in rows 33 feet apart. In the centre of each square, so formed, another permanent, or standard, apple tree is placed. This brings the rows 46½ feet apart. Again a plum, dwarf pear, quince or other small growing tree is planted in every space bringing the tree 8½ feet apart in the rows, the rows remaining a rod apart.

S	p	T	p	S	p	T	p	S	p	T	p	S
T	p	S	p	T	p	S	p	T	p	S	p	T
S	p	T	p	S	p	T	p	S	p	T	p	S
T	p	S	p	T	p	S	p	T	p	S	p	T
S	p	T	p	S	p	T	p	S	p	T	p	S

In the above diagram of orchard "S" stands for standard apples as Gravenstein, Ribston, Kings or Baldwin, "T" stands for temporary apples of young fruiting varieties as Wealthy, Wagener or Ben Davis; free growing cherries as Governor Wood, Windsor, &c. or free growing varieties of peaches. In the space marked "p" are plums, dwarf pears, quinces, apricots or small growing and non-rotting cherries as Early Richmond,

English Morello, &c. This system gives 320 trees to the acre.

Every 20 rods both east and west and north and south an open space is left for a roadway, dividing the orchard into blocks of $2\frac{1}{2}$ acres each. Instead of planting a standard in every square, as mentioned in the beginning of this description, a plum or peach

Two thousand of Mr. Eaton's cherries were dug up from the woods, and later grafted with improved kinds.

Mammoth clover is sown about the middle of July and there is no tillage until about the middle of next May, when the clover is plowed under. In plowing by trees a long chain is used, with adjusted



FIG. 2019. Average sized Gravenstein apple tree at Hillcrest, eleven years old, planted among stumps in new land. Product for year 1900, three barrels.

may be placed in every third square and the row thus formed be filled in with plums, peaches or other short lived trees. Every sixth row on this plan is composed wholly of temporary trees, which can be cut down in 15 years, leaving a roadway for teaming and spraying. As the trees grow and begin to crowd each other they are to be cut out in the reverse order of their planting, till, when the orchard is fully grown, only "S" will be left.

coupling, and the soil is always thrown toward the trees. From the middle of May till the middle of July the harrow is used once a week, which, with the one plowing, is all the cultivation the orchard gets. In a 60 acre orchard it is necessary to economize time. With this in view Mr. Eaton has widened an ordinary six foot disk harrow to eight feet by adding four disks. The rows being $16\frac{1}{2}$ feet apart, this harrow

only goes one turn for each row of trees, and one team among these rows one quarter of a mile long will do 20 acres in 10 hours. Each half of the disk harrow is at an angle so it draws the earth from the trees at one end, and from a line midway between the rows at the other, thus forming a dead hollow. To obviate this the harrow is widened

Pruning is done in June and July, in order to induce fruit bud formation and to avoid the waste of wood growth which belongs to winter pruning. The stems of permanent apple trees are trimmed five and a half to six feet high, but the temporary trees of all species are trained low and headed in, thus gaining in four years as much



FIG. 2020. Burbank plum tree at Hillcrest, six years from the bud, fifth summer planted; product for 1900, two bushels.

out to 12 feet, and a blank of four feet left in the centre. This secures a level surface and enables the horses to keep entirely clear of the trees. For pulverizing the soil a spring tooth harrow has been widened to eight feet, in the same way as the disk harrow. This plan appears to work admirably, for there is scarcely a weed to be seen in the orchard, and the ground is mellow as an ash heap.

fruiting top as is ordinary obtained in double that time. Young Burbank plums and Ben Davis apple trees, not above seven feet high, in this orchard are bearing two bushels of fruit each. The temporary trees are never allowed to interfere with the growth of the permanent ones, but after they are large enough to bear a barrel each they are kept headed in.

In spraying, as in cultivation, it is necess-

ary to operate on a large scale, and Mr. Eaton has invented apparatus suited to his circumstances. One pump is made to operate two sets of hose, each with double nozzle, thus throwing four streams at once. Extension piece of $\frac{3}{8}$ iron pipe are used and a small saucer shaped piece of galvanized iron soldered around them a few inches below the nozzles prevents any drip. Mr. Eaton this year left one row throughout his orchard unsprayed, as an experiment, and is more than ever convinced of the value of spraying. He usually applies the Bordeaux mixture four times a year and believes it of value as a fungicide and also a protection against black knot in plum trees. It might be noted that the orchard is free from black knot.

As to varieties Hillcrest orchards have in apples:—The Gravenstein, Ribston, Blenheim, Wealthy, Baldwin, Wagener, Ben Davis, Golden Russet, Fallawater and Nonpareil. In plums a specialty is made of the Japanese varieties of which there are 1100 Burbanks, 400 Abundance, 300 Red Junes and 200 Wickson giving a succession of fruit from August till well into October. One thousand other plums are divided among the Lombard, German Prune, Reine Claude, Quackenbos, Niagara, Bradshaw, Monarch, Black Diamond and Grand Duke. Plums have been shipped to London with results that justify the expectation of finding a market for surplus products. Ten varieties of peaches have been planted, seven

of which, the Alexander, Hyneu's Surprise, Elberta, Crosby, Hill's Chili, Mountain Rose and Early Rivers, ripening in seven successive weeks, have proved sufficiently hardy. This year Mr. Eaton had 400 boxes of Governor Wood and Early Richmond cherries, and expects to have 1000 of the English Morello. The various kinds of cherries ripen from July to September. In pears there are Bartlets, Clapp's Favorite, Duchess, Louise Bonne, Flemish Beauty, Anjou and others. Three kinds of apricots are grown and also several hundred quince trees.

How rapidly the value of the land multiplies is seen from the fact that thirteen years ago the oldest part of this orchard was in forest, and six years ago much of it was in stump and worth about \$10 per acre. To-day it could not be bought for less than \$500 per acre.

NOTE BY EDITOR.—We are much interested in this account of Hillcrest orchard, and must certainly compliment Mr. Eaton on his wonderful enterprise, and also on the excellent assortment of fruits he has planted. Such a plantation, cultivated and fertilized in a proper manner, is certainly a valuable piece of property, but surely Prof. Macoun's wide of the mark in his figures. We have heard of fruit orchards in the Niagara district of Ontario, valued at \$1000 per acre, but always thought such valuation very misleading, and surely Hillcrest, with all its excellent points, is not worth any such value per acre. Possibly, in some seasons, when the crop is good all around an orchard might yield ten per cent income on one thousand dollars, but what of the years when the crop fails, or the market prices drop to such a point that all the income is eaten up in expenses? These conditions sometimes prevail with us in Ontario, and surely Nova Scotia fruit growers are not exempt from such seasons of discouragement.

STANDARD BASKETS.

FOR a long time the fruit business has been in an unsettled condition for want of uniform packages. Many shippers seem to think that by putting up their goods in smaller packages than their neighbors, and charging the same price, they would make more out of their fruit crop; a trick that succeeds for a time, but by and by

defeats its own end, for soon all baskets sell for the price of the smallest.

At the recent meeting of the Ontario Fruit Growers' Association, held in Brantford, the following gentlemen were appointed a committee on uniform packages: W. M. Orr, A. H. Pettit, L. Woolverton, D. J. McKinnon, C. W. VanDuzer, S. M. Culp, W.

J. Andrews, W. H. Bunting, Robt. Thompson, E. D. Smith, Murray Pettit, T. H. P. Carpenter, W. F. W. Fisher.

This committee met at Grimsby on Wednesday, the 20th of February, 1901, having invited representatives of the local societies at St. Catharines, Winona, Stoney Creek and Burlington to meet with them.

After careful consideration the following resolutions were carried unanimously,—

1. That, in the opinion of this committee, legislation should be enacted prescribing certain standard sizes of fruit baskets for use in the home markets and that all baskets of other sizes be branded indelibly with the minimum capacity in quarts.

2. That this meeting would recommend that the following be adopted as the standard sizes of baskets used in Canada,—

No. 1—Capacity, 15 or more imperial quarts.

No. 2—Capacity, 11 imperial quarts, depth $5\frac{3}{4}$ inches.

No. 3—Capacity, $6\frac{2}{3}$ imperial quarts, depth $4\frac{5}{8}$ inches.

No. 4—Capacity, $2\frac{2}{3}$ imperial quarts, depth 4 inches.

No. 5—Berry box, 1 Winchester quart.

No. 6—Berry box, 1 Winchester pint.

3. That the branding with the minimum capacity of baskets and berry boxes not of standard sizes be made compulsory in the case of imported as well as Canadian fruit.

4. That the Bill regulating the size of the apple barrel, to hold 96 imperial quarts, should be made effective from June 1, 1902.

FEEDING THE ORCHARD.

WHEN an orchard, of apple or pear trees, begins to bear fruit, the land should be enriched at least once in two years. It is a mistaken idea to suppose fruit will grow to full size unless the trees are well fed, and to grow fruit at the present time requires a constant watchfulness from the first opening of the spring to the closing of the autumn. In regions where the canker worm is found the trees should be protected by a strip of tarred paper as soon as a warm day in spring appears, unless this enemy is to be destroyed by spraying the trees after the worm hatches out. The tent caterpillar makes its appearance as soon as the leaves begin to grow, and should be attended to by spraying the trees or by using a light pole with a rag wound round the end of it, saturated with kerosene, and drawn through every nest

as soon as the worms are all hatched. Do not let them get large before employing some means of killing them. Following the tent caterpillar and canker worm is the codling moth, which, unless destroyed, will lay eggs on almost every apple and pear, producing the worms so destructive to the fruit.

The peach should not be overlooked by those who have land adapted to its growth. A light loamy soil with a northern exposure seems to do best for this fruit, and while the tree should be kept growing, it should not be forced so as to make an excessive growth. A tree that makes a large growth is so full of vigor that after the leaves drop in the autumn, if a few warm days come, the blossom buds start so much that the first cold weather kills them. — *American Agriculturist*.

CENTRAL EXPERIMENTAL FARM NOTES.—XIV.

THE past month has been one of unusual severity, and while the temperature has not been very low there have been many days when it was below zero. It has not been above freezing point since the 22nd of January, and since November there has been no thaw of any consequence. The snow has continued to increase this month, but there have been no heavy falls. The coldest day of the winter, up to February 20th was January 20th, when the temperature fell to 25.5° F. below zero. The lowest temperature in February, so far, was 11.8° F. below zero, on the 3rd.

It was my privilege recently to attend the annual meetings of the Nova Scotia and Prince Edward Island Fruit Growers' Associations. The meeting at Wolfville, N. S., was well attended and the discussions lively. Two subjects, which received special attention there, were the proposed Agricultural College for the Maritime Provinces and the transportation of fruit across the Atlantic. The fruit growers of Nova Scotia appear to have as much complaint regarding the manner in which their fruit reaches the other side as the fruit-growers of Ontario; although it was clearly proven that, as in Ontario, bad and dishonestly packed fruit had often been shipped. Spraying received considerable attention at this meeting. Many of the fruit growers in the Annapolis Valley now appear to be in doubt as to the value of spraying, as the results last year were not satisfactory. However, the value of spraying was clearly proven at this meeting and it is hoped it will be done more thoroughly than ever in the future. Last year was an unfavorable one for spraying and favorable for the growth of the apple scab fungus, which probably explains the failure to get good results.

Owing to stormy weather, the meeting at Charlottetown, P. E. I., was not as well attended as it would probably have been if the weather had been better. However, there was a good representative gathering of the most interested in fruit growing in the province.

The importance of preserving the forests, and their great value as a protection for fruit and farm crops, were thoroughly discussed and much useful information was given to the meeting.

The variety question is one in which the fruit growers of Prince Edward Island are most interested. Fruit growing is quite a new industry there and everyone is uncertain as to just what to plant. Judging by the exhibit of apples, in which were represented many of the best varieties, it was quite evident that most of the best apples grown in Ontario will succeed well on Prince Edward Island. The importance of planting only a few of the very best varieties was impressed upon the meeting. It was recommended that the varieties which were giving the best satisfaction in Ontario for export purposes should first be considered, and then out of these the sorts which were succeeding best on Prince Edward Island should be chosen. The advantages of planting the trees from 35 to 40 feet apart were also given much emphasis. With some government aid the Fruit Growers' Association of Prince Edward Island should become one of the best in the Dominion, as there are many practical and intelligent men who take an interest in it.

At present experiments are being carried on at the Central Experimental Farm in grafting. A large number of new varieties of apples, of which scions have been procured in different places, are being crown and root grafted. The small Siberian crab

(*Pyrus baccata*) is being quite largely used this winter as stock, on account of its extreme hardiness. Some of the grafting is done on the crown and some on the root, for comparison of results. Where root killing is liable to occur, varieties crown grafted on this stock will probably give the best results, as, when root grafted trees are planted, the scion often throws out roots and in time the tree becomes on its own roots and is liable to suffer from root killing, if not a very hardy kind. The Paradise stock is also being used to obtain dwarf trees and ascertain how they will succeed at Ottawa. More care should be taken in choosing stock for apple trees in the colder parts of Canada, as if the stock is tender the tree may be root killed. Several kinds of stocks are being used for pears this winter, including European Mountain Ash, Hawthorn, and two wild Asiatic pears called *Pyrus betulæfolia* and *Pyrus sinensis*. Pears have not proved successful at Ottawa, as they have either been killed by blight or winter, and hence every effort is being made to overcome these diffi-

culties. The European or Domestica plums have not proved a success when grafted on American plum stock, as the former outgrows the latter. The best results are obtained by grafting the American on the American, and the European or Domestica on Domestic stock. The ordinary stocks used for cherries, such as Mahaleb and Mazzard, did not prove hardy enough at Ottawa, and hence the native Bird or Pin cherry, *Prunus Pennsylvanica*, was used for this purpose, with excellent results. The union is good, and being very hardy there is comparatively little danger from root killing.

The season will soon arrive when top grafting may be done. Judgment should be used in choosing the varieties to be grafted on the trees. Strong growing varieties should not be top grafted on varieties like Duchess or Wealthy, as the trees will become top heavy and probably break down. The stock should be as vigorous, or nearly so, as the top.

Central Experimental
Farm.

W. T. MACOUN,
Horticulturist.

A SHIPPING TOMATO:—A number of years ago I mentioned in these columns, with words of praise, the Honor Bright tomato, calling especial attention to its wonderful keeping qualities, which seemed to make it particularly suited to long-distance shipment; as, for instance, to England. I also liked it for a canning sort and for very late use. "American Gardening" now says:—"We have been able to discover more good points in it than our previous records showed. . . . Its yield of medium-sized perfect fruits compares well with any tomato grown. Its flavor is also acceptable to many people. . . . It takes a tremendous time to ripen, which largely accounts for its marvelous shipping qualities. There is no doubt but

that the variety can be grown in this country and successfully shipped to Europe, for if picked at the right stage it will ripen on the voyage." As Mr. W. W. Tracy (of the firm of D. M. Ferry & Co.) had pointed out, the coloration begins at the centre instead of at the skin, as is the rule with other varieties. Fruits that are yellow on the exterior may be cut, and it will be found that the flesh in the centre is beginning to become red. The variety can be readily distinguished by the yellowish, rather sickly appearing foliage. The weakness is only apparent, however, and I have had no reason to complain much about the Honor Bright showing blight or disease on the fruit.

CLASSIFICATION OF APPLES.

IN a recent bulletin, Prof. F. A. Waugh, horticulturist of the Vermont Experimental Station, discussing apples of the Fameuse type, says, regarding the classification of apples :

The second revision of Downing's "Fruits and Fruit Trees of America," which is the standard work on descriptive pomology for America, names 1,856 varieties of apples. This list was published in 1872, since which time there have undoubtedly been some hundreds of varieties introduced. In 1892 Bailey made a list of the apples offered in nurserymen's catalogues in the United States and Canada, and found that there were 878 varieties then named, propagated and held for sale.

Besides the varieties sold by the nurserymen at any given time, there are always many more not generally distributed but kept, coddled and prized in private collections, in small neighborhoods, or in out-of-the-way places. It seems a very moderate estimate, therefore, to say that there are 1,000 different kinds of apples in commercial circulation on this continent to-day, and there are over 2,000 varieties described in contemporary literature, and that there have been more than 3,000 separate sorts named and propagated in America within the period covered by our brief pomological history.

The impossibility of any man's knowing all the varieties of apples will be evident from the foregoing considerations. These thousands of varieties are separated from one another by infinitesimal shades of difference. Some of them can hardly be told apart by the most expert pomologists and after years of acquaintance. The cultivated apples are remarkably homogeneous. They are (with very minor exceptions for certain

crabs) derived from one original species. Compare this with the cherries,—two or three hundred varieties derived from two species,—or with the plums, where a thousand varieties are derived from ten or fifteen original species. In no class of fruits, unless it be possibly the strawberries, are varietal distinctions so thin and vexatious as in apples.

But while the characteristics of varieties of apples, taken all together, are so confusing, there are a few pronounced *types* which the horticulturist may fix in his mind, and around which cluster certain *groups* of varieties. The Fameus presents such a type. There are several different apples of the Fameuse group, all differing measurably from Fameuse, but all conforming closely enough to the Fameuse type so that their close relationship with one another and with Fameuse may be readily recognized by the pomologist.

If the reader will consider the foregoing paragraph closely he will see what is meant by the important terms "type" and "group." They present the essentials of pomological classification. If our multitudinous varieties are ever to be classified, it must be by putting them into groups; and these groups must cluster about the more conspicuous, permanent and recognizable types.

In common language these groups are sometimes called "families," and some men speak of the "Fameuse family," the "Ben Davis family," etc. The idea is the same; but the terms "type" and "group" are more precise and convenient, aside from the fact that the word "family" has been pre-empted in plant study with another technical meaning.

MEETING OF NOVA SCOTIA FRUIT GROWERS.

THE 31st annual meeting of the Nova Scotia Fruit Growers' Association has passed into history. In point of attendance and in the interest shown in the discussion, it was one of the best ever held by this association, though there was great diversity of opinion on most of the subjects considered. The transportation problem, spraying and agricultural education were the three principal questions discussed, though there were a number of others of considerable importance.

President J. W. Bigelow, in his annual address, stated that he could find no record of any export of fruit grown in North America in 1801, which has developed in the last century to a product now valued at over four hundred million dollars a year. In Canada the annual value of fruit grown may be safely estimated at eight million dollars, and in Nova Scotia it has passed the one million dollar mark annually. The past year has been one of the most disappointing and unprofitable for fruit culture in Nova Scotia ever recorded. Starting in June, with abundant blossoms, our apple crop developed unfavorably, with a yield of less than 300,000 bbls. of inferior fruit, one-half of which never should have been marketed, and one-third of which was lost in drops and culls; and having to compete with a good crop of superior fruit from U.S. and Ontario, as well as Europe, in foreign markets, the price has ranged from 0 to \$2 per barrel, and in many cases money has been remitted to pay expenses. A number of unfavorable conditions conspired to render this year's fruit business unfavorable: 1st—An unusually mild winter, with frequent cold changes, injured the fruit buds; 2nd—A cold, wet May produced an increased fungous and insect development; 3rd—A terrific wind storm, on the 12th September,

destroyed one-fourth of the best of the fruit, and injured both trees and fruit; 4th—An unusually severe frost, early in October, injured the fruit and produced a skin rot; 5th—The worst class of steamers ever employed in the carrying trade, cooked and practically destroyed the fruit during the 15 to 20 days cargo was in transit. The plum crop, where carefully cultivated, was abundant, and is estimated at twelve thousand baskets (10 lbs. each). Pears were a good crop, and of fair average quality. Peaches, strawberries and other berries were a good crop, and brought remunerative prices.

The 200 bottles of fruit in acid, and 80 boxes and 30 barrels of Nova Scotia fruit sent to Paris Exhibition, and exhibited in cold storage by the Canadian Government, proved to be one of the most important and attractive exhibits of food products of the world there shown, and our Nonpareils and other long keepers were shown, after being twelve months in cold storage, perfect in flavor and keeping quality. The exhibit of food products from Canada at Paris has developed our trade to all parts of the world, and orders for Canadian apples are now being filled from almost every country. The bottled fruits shown at Paris, supplemented by 65 Cochran cases of this season's crop of apples, will be staged in the exhibit at Glasgow, Scotland, from May 1st to Nov. 1st, 1901.

The School of Horticulture is progressing most favorably under the able direction of Prof. Sears, with 64 students, representing nearly every county in the province, and many from N. B., P. E. I., and England. Prof. Sears' lectures through the province, on practical points of fruit culture are developing an interest in fruit culture of great value, and the fact is being demonstrated that every county can raise superior fruits in

tion, it being suggested that, in the opinion of this association, apples should be placed at least on an equal footing with flour." The second matter of transportation which received attention was in reference to the character of the steamers which are allowed to carry freight upon the subsidized lines running between London and points in Nova Scotia. It was shown beyond any question, that the vessels which have this year been carrying apples from Halifax and Annapolis have, in some cases, been unfit for such a purpose, and have furthermore been allowed so free a hand in the matter of when they should leave port, how the fruit consigned to them should be handled, and how other freight, such as deals, should be stowed in connection with the apples, that great damage has been done to the fruit. Secretary S. C. Parker said he had personally examined the account of sales of more than one thousand barrels of Gravensteins, and they would not average 10c per barrel net. It was felt by all that some action should be taken which would remedy this state of affairs in future; that steamers which are subsidized by the Government should be rigidly inspected, and so supervised as to insure the proper handling of the fruit, and such a system of ventilation as should give the greatest possible assurance of the apples carrying satisfactorily; and, furthermore, that the failure of the steamship companies to meet the above requirements should be deemed sufficient reason for the withholding of the subsidy. Prof. Robertson said that this plan had already been adopted by the government to a certain extent, but that our difficulty had been, the present season, that freight rates were so high and suitable vessels so scarce that steamship owners were not as amenable to this form of moral suasion as in ordinary years. Some of those present favored the abolition of all subsidies

to steamship companies, while others thought that poor and dishonest packing was the great cause of the difficulty; but the great majority, while admitting that some of the first was not packed as it should have been, considered the steamships as largely responsible, and favored the appointment of an inspector for each port from which apples are being exported, who should have power to see that fruit was properly handled, properly stowed in the vessels, and to examine fruit which he had reason to suspect was fraudulently packed and condemn it if necessary.

The subject of *spraying* was given an entire session for discussion, and even then the interest was not exhausted. No particularly new features were brought out, but it was evident that in many cases spraying had not given as satisfactory results in 1900 as could be desired. Yet every one who took part in the discussion expressed himself as determined to continue the practice; one man saying, in reply to the question whether he intended to persevere, "Yes, or go out of the fruit business." But it was very evident that during such a season as last year, when there is so much rainy weather during the early part of the season, the early spraying is all-important. An example illustrating this fact was given. Two men sprayed their orchards; one twice, the other three times. The first man sprayed once before the blossoms opened, the other not till they had fallen. The result was that the man who began early and only sprayed twice had better fruit than the man who sprayed three times, but didn't begin till after the blossoms fell. Doubtless different weather would have modified this result, but it seems probable that the early spray is always of great importance.—*Farmers' Advocate.*

THE KIEFFER PEAR.

[Gist of the discussion before the recent meeting of the N. J. Hort. Society.]

PICKED early, when two-thirds grown, and ripened in dark with quality at its best, the Kieffer pear brings highest price, but is too tender to ship to any distance. In the fall of '99 a great demand was had from canners. Many of these to save expense of sugar used a chemically prepared sweet having 50 times the strength of sugar. When first canned it was a perfect success, but later the acid employed in the preparation discolored the fruit and also dissolved the tin coating of can, causing syrup in can to have a metallic taste, and eat holes in the iron plate, resulting in total loss of the canned fruit; one canner lost \$50,000. Where sugar was used in canning the result was financial success, yet too few put up to test the market. In 1900, while in some sections a slight demand was had for canning, no sales were made in the heavy producing sections.

Prof. Smith said the San Jose scale is here to stay and that hereafter only careful growers could raise Kieffer. Both scale and oriental pears come from Japan, but the scale does not thrive on them, but on American crosses it is at home. The scale can be kept in check with care, but the man running the sprayer must use judgment in spraying. Crude petroleum rightly applied will kill scale.

Rust or clouding of fruit, Prof. Smith said, is not caused by an insect. Prof. Halstead, state botanist, was not prepared to say what the cause was, as it might be one of several. It might be inherent. All Japan pears had a natural discoloration of skin—skin very thin and tender, easily discolored. Excessive spraying and any spraying for cloud was excessive, as it does no good. It is a corky growth on the surface of fruit, when skin has been injured, and is favored by shade, lack of ventilation, want of sunshine and heavy

dews, as oriental pears originated in a dry, hot sunshiny climate.

As to the advisability of planting more trees, D. D. Denise, one of the largest pear growers in the state, said this is a difficult problem to solve. The tree is a nice, rapid grower, bears early and quality is better than when first introduced. Quality now equal to many other varieties of pears now marketed. It is more proof against insects and blight than most other varieties. Local markets are over crowded, yet there is plenty of demand from more distant markets. Mr. Denise's little Kieffer orchard of from 1200 to 1500 trees has netted him more money than all the rest of his farm. In 1900, \$100 p. a. net yield 200 bbls. p. a.; price no lower than best apples, and yield much greater. He keeps heads of trees open for air, sunlight and ventilation, to guard against cloudiness of fruit. Trees succeed best on sandy soil not too rich, but they must be taken care of. An orchard 10 miles from Mr. Denise's from which ungraded fruit was sent to market, netted owner only 7c. p. bbl.; "not a paying crop."

John S. Collins, the heaviest Kieffer pear grower in N. J. said crop of 1900 did not pay. No sale for surplus, as canneries did not want them and those placed in cold storage were doing no better. Pears for cold storage should be picked before they color, and as soon as the stem separates readily from limb. Manure sufficiently to give size, color and quality; a starved tree never gives good quality fruit.

In the light of all that can be gathered, I consider the future of the Kieffer pears an open question, but let no one plant it unless he is prepared to watch and care for them. The season of 1900 has not been a fair test so far as N. J. is concerned as to its future.—*J. B. Rogers.*

THE CHAMPION PEACH.

Among the first trees planted, the first to ripen good specimens, and the earliest in its season, was the Champion. Little trees only three years from the bud matured a few handsome peaches about Aug. 1, whose beautiful color and white juicy flesh gave excellent promise. At four years they bore a moderate crop, which rotted badly on the trees. This year, for the first time, a full crop has been gathered. The trees, now doubtless at their best, were cut back fully half their growth for the first three seasons, forming low, well-branched heads, and during the past two years when the fruit buds were killed by cold, they have reached a large size. In common with most of the peach trees grown, they were loaded, this year, to their full capacity.

The Champions began to ripen—and a pretty sight they were, for no rose is redder—the 30th of July. The last peaches held on in good condition the 12th of August. For two full weeks an ample family supply was enjoyed, the fruit of two and a half (one half grown) trees. The largest quantity picked in any one day was a full bushel. The whole yield, not exactly measured, was perhaps three to four bushels. No fruit is handsomer to the eye. Of good medium size, regular and nearly round in form, and flushed with an extraordinary fullness and delicacy of color, these early peaches give one a fresh impression of the actual beauty of this peerless fruit. But, like other beautiful things, the Champion falls short of perfection. It has the primary disadvantage of being a clingstone. It shows some tendency to rot. It has a very thin, tender skin, which makes transportation difficult. After a day of rain, when the peaches were fully ripe, this tenderness of the skin was more marked. The ripe peach is juicy, fragrant and full of flavor, so that its attrac-

tive appearance does not deceive. As it is the first native peach fit for market, it commands a ready sale and good prices if offered locally.

It appears, therefore, in summing up the results of this small trial, that while it is probably too perishable for ordinary market growing, the Champion Peach has a decided value for the home orchard in its earliness, good quality, and, in favorable seasons, abundant productiveness. It lengthens, at the end most generally appreciated, the season of an unrivalled fruit, and no one who loves to grow fine fruit need grudge the care of a few trees that mature so quickly, even should they yield no more than a single full crop. With peach trees, at the North, it is well to have a row of seedlings always in the garden to keep up the supply. But it is a mistake to trust to mere seedlings, when the choice varieties are so easily reproduced by the simple process of budding.

In the plat considered, the Crosby was the variety relied on for the main planting, its "iron-clad" qualities, as to hardiness and general reliability for a cold-climate peach, being much urged at that time. So far, the result has failed to justify expectations. At the present time the trees are hanging heavy with half-grown peaches. The Elberta, though some what more advanced, is still hard and green. The Lemon Free will precede it a little in ripening, and this has proved, with us, a fine peach.

All these trees are included in the general plan of a large mixed orchard or fruit garden, in which room has been found for a considerable variety of pears, plums, cherries, grapes, etc. The situation gives room for quite a variety of choice in location, as it includes a gravelly knoll, sloping gradually to a moist meadow bordering on wet

land. The general character of the soil is a warm, sandy loam, easily tilled and productive. A considerable portion of the space occupied comprises an old garden, rich in humus and heavily manured before planting. Wood ashes is the only dressing

applied in growing the peach trees, most of which occupy the well-drained slope of the knoll. All have made a fine growth and are in thriving condition.—Country Gentleman.

GROWING AND EXHIBITING FRUIT.



ALL dessert fruits to be of value for market or attractive for home use must be handsome in color and form. Cooking fruit, to be of the best quality, must be fair and fine grained. So we have several things other than size to consider in the fruit exhibits, and I think it important that the judges of fruit at our larger exhibitions should try to encourage the growing of fruit of the best quality as well as of the largest size; for instance, a very large apple of poor color or quality is of but little value, and a small strawberry of fine color and quality is equally undesirable, from a commercial point at least, so we should consider that size and color must go together to make a perfect fruit.

Very many varieties of fruit are shown, especially at our agricultural fairs, long before they should be ripe, and there is an endeavor to get a color similar to what the fruit should have when ripe, but this is all wrong, because we do not want Baldwin apples ready for the table in September, or Northern Spy in October.

Judges who consider color the most important quality in fruit are likely to do more for the good of the fruit interests than those who consider size of the fruit of the first importance; but the ideal fruit is one of good size and color.

There is a difference of opinion among fruit

judges in regard to imperfections. Some claim that a plate of fruit is no better than the poorest specimen, and they will often throw out a plate because of a defect in a single specimen, when those remaining are much better than any other whole plate. Other judges claim that if the eleven are better than any other twelve they should have the prize.

While size and color are in general the two most important qualities in the fruit exhibition, when we consider the peach we should use a great deal of care, or we may encourage the exhibition of the product of disease. Perhaps there is no other fruit that is increased in size and color as is the peach by disease. It has been so that there was no use in showing sound peaches at some exhibitions, as the prizes were all given to prematurely ripened fruit. I have seen prizes for Crawfords, Early and Late, given to peaches between which one could hardly tell the difference. It is not uncommon to see the prizes given to ripe Elbertas and Crosbys early in September, when the sound fruit shows no signs of ripening. These displays of diseased peaches may take better with the public and are certainly more of an attraction than good sound fruit, but I believe they are against the promotion of horticulture.—*H. R. Kenny, before Mass. H. Society.*



TIMELY TOPICS FOR THE AMATEUR.—XIII.

IN the February number of the Horticulturist a list was given of what may be very properly termed iron-clad and easy-to-grow varieties of herbaceous perennials, or permanent border plants, as well as a short list of annuals suitable for young beginners, or those inexperienced in plant culture. Many of the varieties there mentioned are possibly well-known to readers of the Journal, and may, perhaps, have been grown by them, as with a few exceptions most of them can be fairly classed amongst what are generally styled as old-fashioned flowers. But this is no reason for discarding or rejecting them from our gardens of the present day, more especially as this class of plants are again becoming popular with the flower-loving public, chiefly for ornamenting lawns and flower gardens. The production of a better type of plant and flower than the originals, as well as the introduction of new species and varieties, has doubtless aided greatly in bringing these pretty and useful plants into deserving popularity again, after a period of apparent neglect.

Some of the plants mentioned may not, perhaps, be as suitable for town or city gardens as the more choice greenhouse

plants, but a judiciously selected and well-grown collection of herbaceous perennials is an acquisition to any lawn or flower garden, whether in town or country.

To the list of plants already referred to may be added a few low-growing flowering shrubs, provided there is room in the border for them. The double flowering *Spirea prunifolia*, *Kerria Japonica*, *Wigelia rosea* and *W. alba*, *Deutzia gracilis*, *Deutzia parviflora*, *Spirea bumalda*, *Spirea Anthony Waterer*—one of the premiums for 1901—and a plant of the herbaceous hibiscus (*Crimson Eye*), will be found suitable for planting in a mixed border of plants.

The taller growing *deutzias*, *forsythias*, *lilacs*, *spireas*, etc., might possibly be used in a border of large dimensions, but for use on small lawns these latter are better suited for planting as single specimens, or to hide from view some unpicturesque feature in the back-ground, such as fences or out-buildings.

No mixed border, however, would be complete without a few hardy garden lilies. One of the best of these is the grand old *Lilium tigrinum* (*tiger lily*), a variety seldom seen in gardens at the present time. *Lilium candidum*, *Lilium superbum*, and *L. Canadense*, are also among the best kinds

FIG. 2021. *CAMPANULA MEDIA*.

for flower gardens. The Japanese lilies such as *L. rubrum*, *L. speciosum* and other varieties, are not so hardy as those before mentioned, requiring careful protection in winter, and are besides very liable to disease. A clump of lily of the valley should also be planted where they will not be disturbed, and in a position that is not too much exposed to the hot sun in summer. A north or east aspect suits these sweet little gems of the lily family the best.

A rose bush or two of the *rugosa* type, or some of the hardiest varieties of the hybrid perpetual roses, cannot possibly be dispensed with. This completes a list that will, with very little care and attention give pleasing and satisfactory flowering results, from early spring until late autumn.

And now a word or two as to the lay-out and preparation of the border. It is very difficult to do justice to this subject except in a very general way ; as the surroundings of different residences and sites are of such a varied nature and character.

Most suburban, or even farm and country residences, however, usually have a small plot of lawn or garden attached to them, where a mixed border of plants would be a decided acquisition, and lend a cheerful and home-like appearance to the surroundings.

The most suitable place for a border would probably be either on the east or west side of the lawn, leaving the more central part occupied by a walk, flowering shrubs, a bed of greenhouse plants perhaps, or of plants from the window. A shade tree or two will also be necessary somewhere on the lawn. Shade trees are indispensable in summer time for the thorough enjoyment of a lawn. It will be necessary to keep clear of these trees in planning out the border, and also avoid getting too near to pine trees, and hedges of pine or cedar, as the roots of these would rapidly absorb all nutriment from the plants growing near them.

A directly south aspect is not a good position for a border, especially if it is immediately in front of a dwelling house or a high close wall or fence. The reflected heat of the sun, and an imperfect circulation of air, would scorch the plants up very quickly during the heat of summer. An open situation, having an east or west aspect, leading out and away from a picket or wire fence would be a good position.

A north aspect is not objectionable if the position is not too heavily shaded from the south.



FIG. 2022. LILY OF THE VALLEY AND NATIVE FERN.

An average width of six or seven feet gives room for a nice display of plants ranging in size from quite dwarf plants to those five or six feet in height. The size of the border, either in width or length must be determined by the number and size of the plants it is to contain, as well as the space that these will require when they have fully developed their growth. Most of the dwarf shrubs mentioned would require to be about three feet away from any other permanent plants. The perennial plants and lilies should have about two feet clear of space from other plants of a like nature. The annuals and gladiolus bulbs and any other plants considered desirable, could be placed between these, so as not to crowd or over grow them. (In mentioning gladiolus on page 65 of January number the word "perennial" was inadvertently inserted.)

The most desirable kind of soil to succeed best with almost all kinds of garden flowers, is without doubt soil of a rich loamy nature. The latter kind however is not by any means really necessary, as many shrubs and perennials succeed splendidly in heavier soil. It is very essential that the border should be well drained, as there is nothing more detrimental to herbaceous perennials or shrubs than badly drained ground.

The border should have a good coating of well rotted stable or cow manure, and be dug thoroughly and deep. This should be done the previous fall, or quite early in the spring if possible. Every vestige of roots of perennial grass and weeds should be carefully picked out when digging, especially twitch or spear grass, as this latter is very troublesome in herbaceous borders if not kept under control. The best time for planting

or transplanting herbaceous perennials is about the first week in May, just as the plants begin to show signs of new growth.

The iris, paeonies, dielytra, and hemerocallis could be planted in the autumn to advantage. A light coating of well rotted manure and the ground around the plants lightly forked over every spring, besides keeping free of weeds, will be about all the attention most of these plants require, when once they become established. Some of the herbaceous plants may require to be divided up and transplanted once in every two or three years. Varieties of the iris and perennial phlox (*Phlox paniculata*) are amongst those that may benefit by being transplanted as often as mentioned. Most of the other herbaceous plants will not require to be disturbed for perhaps six or seven years. The little care and labor that herbaceous perennials require in their culture, and their general adaptability to grow and flourish, in

spite of drought in summer or frost in winter, make them particularly adapted for planting in gardens where very little care and attention can be given them.

If a mixed border of plants containing all of the varieties mentioned is not desirable, a small bed or border with a plant or two of Iris, Dielytra, *Hemerocallis flava*, *Phlox paniculata*, *Campanula persicifolia*, *Rudbeckia* (Golden Glow) a clump or two of *Lilium superbum* or *Lilium tigrinum*, and a few of the annuals mentioned in the February number of Journal will be found to be a desirable and profitable selection.

These will with only ordinary care, assist materially in brightening up the garden, besides giving a fair supply of cut flowers for the house during a great part of the summer, especially in a year or two when the perennial varieties have become well established.

Hamilton.

W. HUNT.

A LILY POND.

ANY one who has a nice lawn should, by all means, have a lily pond. It is easily made and a thing of beauty. There are many ways of making these ponds, either of stone, brick or masonry, but as these are all expensive, we will give our attention to another sort that will cost but a few dollars and at the same time last for years. Have a wooden tub made similar to a wooden cistern or water tank, with straight sides and about four feet deep. It can be made round or square, and as large as you wish, but should not be smaller than six feet across. This size will hold six or eight bulbs. One foot from the bottom have a hole two inches in diameter, and a plug to fit it, which must be put in from the inside, and project far enough to make its removal easy. Mark the top of the tank

exactly above this plug, so that you may know where to find it when the time comes to let out the water. This tank should then be sunk in the ground to within two inches of the top, and then make a gravel border around it of about eighteen inches. When preparing the hole in which to put the tank, determine upon which side will be the place where the plug is to come and dig a space about eighteen inches across, and as deep, and fill it with small stones. This is done in order that the water will have a place to drain into when the plug is removed.

Give your tank a coat of waterproof paint on the inside, and of tar on the outside, before sinking it in the ground. This preserves the wood from decay, and the tank will last much longer. When your tank is all ready, fill it up to the plug with pond

mud, or any rich earth which has at least a quarter of cow manure, and put in your lily bulbs. Run in the water gently so as not to disturb the soil, and fill but a few inches above the bulbs. When they show signs of growing, add more water, until at length it is almost or quite full.

When the water freezes to the depth of a half inch, reach down and remove the plug,

and fill the tank full to the top with dry leaves or loose hay, and lay boards over the top. Any tender lilies like callas, should be removed and either placed in the cellar in a pail of mud, or dried off. When the hard frosts are over in the spring, remove the litter, add a little well rotted cow manure, and any new bulbs you wish, and gradually refill with water.—*Vick's Magazine*.

GREENHOUSE, WINDOW AND GARDEN.—III.



HE greenhouse and conservatory will require extra care as the spring approaches. Close attention will have to be given to watering all plants thoroughly that are in full vigorous growth, as well as those in flower. Shading and ventilating will also be features of routine work, and the fires must on no account be neglected during the treacherous weather often experienced in March. Roses in pots and those growing on benches will require plenty of water, liquid manure once a week, and syringing with clear tepid water once a day, if possible, to keep them going.

Azaleas, that have done flowering, should be kept in a warm but not too sunny part of the house. They require to be kept quite moist at the roots and syringed daily, after flowering, to encourage the new growth. If necessary they should be re-potted after the flowering period.

Greenhouse ferns should be re-potted at once, if not already done. It is always advisable to re-pot ferns before the young fronds have made much growth. An inch of drainage in the pots, and a compost of equal parts enriched loam, sand, and leaf soil (or peat) suits nearly all ferns.

Varieties of Rex Begonias may be propagated now from mature leaves; or the thick fleshy stems, or rhizomes, can be cut into lengths of about two inches, and struck in

sand. The base of the mature leaves with about an inch of the stem attached—and the latter inserted in sand so that its junction with the leaf is just under the sand—will strike readily and make much better plants than those grown from the thick stalks.

Winter flowering begonias, when out of flower, such as *B. incarnata*, *B. fuchsoides*, *B. foliosa*, can be cut back a little; cuttings of these can be struck as soon as the cuttings can be secured. Young plants of these succeed better, as a rule, than old plants kept over. *Begonia rubra* rebels against much pruning, it needs liberal treatment as to soil, potting, etc., but does not like cutting back.

The new begonia, "*Gloire de Lorraine*," promises to be a valuable addition to winter flowering begonias. It is inclined to be a little fickle, and requires care in growing; but its large clusters of bright rose-pink flowers, that it produces in such profusion, gives even a small plant when in flower a most beautiful appearance. It requires very similar treatment to *B. incarnata* but is not quite as robust as that variety, being more of the habit of *Begonia Bruantii*.

Tuberous begonias and fancy caladiums may be safely started now. Barely cover the tubers, or bulbs, in sand in a warm part of the greenhouse. Water them thoroughly once, and never allow them to become quite

dry afterwards. Caladiums like equal parts of sand, leaf soil and loam, and plenty of drainage in the pot. Tuberous begonias succeed very well in ordinary potting soil, enriched sandy loam.

Cuttings of allamandas can be taken now with every prospect of their striking root easily.

There is still time for cuttings of coleus and similar plants for bedding purposes.

Chrysanthemum cuttings started now will often do better than if taken earlier, especially if grown steadily on all summer. If the plants are to be grown on benches in the greenhouse all the summer—which seems to be the popular and most successful method of growing them now—the cuttings can be taken as late as May and will give good flowering results. In fact bench grown plants seems to be the only method of growing them, to successfully avoid the destructive fungous disease (*Puccinia Hieracii*) commonly called “rust,” that has played such havoc of recent years amongst these popular autumn flowers. Spraying the young plants with a solution of sulphide of potassium, made by mixing one-half ounce of sulphide with a gallon of water, seems the best remedy at present known for checking this destructive disease. Picking off and burning the leaves on the first appearance of the minute rusty-brown spots on them, will also help to check its ravages. The introduction of new seedling varieties, the use of preventives, and careful culture may perhaps be successful in eradicating what promises to banish chrysanthemums from our greenhouses as pot plants, unless some remedy can be found that is more effectual than any known to plant-growers at present.

Carnations and violets suffered very badly a few years since from a similar disease; although not quite eradicated it is not as destructive as it was.

The many new and really grand varieties

of carnations recently introduced have brought these ever-popular flowers into even greater prominence than at any time before in their history. The immense and sweetly perfumed flowers of these new varieties cannot help but make them acceptable to all flower-lovers. Any of the following standard and well tested varieties would be suitable for the amateur grower, viz.: Mrs. Lawson and Mrs. J. Dean, pink; Flora Hill or White Cloud, white; Gen. Maceo, crimson; Gold Nugget, yellow; and Mrs. Bratt, red and white striped.

Cuttings of carnations should be potted into 2½ inch pots as soon as rooted.

Sow a packet of primula obconica grandiflora seed, and grow the plants on in the house all the summer; they are easy to grow, and one of the most remunerative of all the primula family.

Seeds of annuals required for early flowering should be sown now. Cosmos seeds are best sown early to ensure getting full returns from them before frost sets in.

Ventilators at the top of greenhouse or conservatory should be opened as often as the weather will permit, so as not to allow the temperature to get too high. A temperature of 75° to 80° in the day time, and 50° to 60° at night, is suitable for a mixed collection of plants. A higher temperature than this is not only injurious to many plants but it induces a rapid increase of insect pests.

A slight shading may be necessary for palms, ferns, etc., on hot sunny days, to prevent scalding.

Keep the floors well dampened, syringe and water the plants early in the day.

If you have room in the greenhouse, sow some mustard seed, pressed slightly into the top of some soil in a shallow box. Water the seed and not cover it with earth, it will give you a nice salad early in the season.

WINDOW PLANTS.

Plants in the window will require to be watered thoroughly at this season of the year, so that all the soil in the pot is moistened.

Pots of the hardy varieties of narcissi, such as *Von Sion*, *Horsfieldii*, etc., should not be allowed to dry out after flowering. If kept growing they can be planted out in the border in spring. If left undisturbed for a year or two they will make a useful and permanent addition to the border. These bulbs may perhaps flower the second year in the window, but they are uncertain. Tulips and Dutch hyacinths can be treated the same as recommended for the narcissi; cuttings of fuchsias, geraniums, lemon-scented verbenas, and similar plants, will strike readily in pots in sand now, if young vigorous growth can be secured for cuttings. Begonia cuttings had better be left until April or May before attempting to strike them. A few pots of petunias, verbenas, cosmos and lobelia, should be sown,—if these are grown—as they require to be early to give good flowering results.

Nasturtiums for window boxes should be sown now, two or three seeds in a 3-inch pot, is better than sowing them thickly in a large pot, as they do not transplant as well as many other varieties. Mignonette should be sown eight or ten seeds in the same sized pot as for nasturtiums, to secure early flowers.

Watch out for sudden dips of cold weather in March.

Canna roots may be potted early in April and grown on until it is time to plant them outside at the end of May or early in June when all danger of frost is over. Hydrangeas, oleanders, and similar plants can be brought out to the light, and started into growth. Pot these into larger tubs now if necessary, before they have made much growth.

THE GARDEN.

Pruning should be finished up as early as possible, especially grape vines and gooseberry bushes. These require to be done early to secure the best results from them, but currant bushes and all fruit trees should not be left too late before pruning.

The material for a hot-bed should be in course of preparation. If the manure is fresh from the stable, throw it into a heap for a week or ten days. It should be turned over once during that time if possible before making up the bed. A hot-bed, even if ever so small, is very useful for a few pots of early tomatoes, peppers, cauliflowers and cabbage seed. If about six inches of good soil can be put on top of the manure, some lettuce, radish, and mustard can be sown in rows. These will give a few dishes of salad that will be both acceptable and healthful.

Place an apple or sugar barrel, from which the top and bottom ends have been removed, over a clump of the earliest rhubarb. Cover the top of the barrel over at night, or during cold days; this will probably give you a dish of rhubarb a week earlier than unprotected roots will.

Hardy roses should be pruned early in April as soon as the buds show signs of growth.

If you have any tender perennial or biennial flowering plants that are not protected, more especially hollyhocks and biennial campanulas, sprinkle a little long strawy manure over them. It often happens that these and similar plants are well protected by snow during winter, but during the early spring months are often exposed to severe frosts at night, and hot sun in the day time. This alternate freezing and thawing is very trying to plant life. Many garden plants that have pulled through the winter splendidly under the snow, are killed out by the fickle and varied weather that

often prevails during March and early April.


A portion of the covering on beds of Dutch and other bulbs may be removed toward the end of the month, if the weather is favorable. Put the lightest portion of the covering back on the bulbs for a short

time, this can be removed when all danger of frost is over. This allows the tips of the growth that are often peeping above the ground, to harden gradually, so as to be able to resist any light frost that may come later on.

Hamilton.

W. HUNT.

FLOWERS FOR ENTHUSIASTS.

 FEW flowers always awaken my enthusiasm. Among them are hollyhocks. So capable is this flower of improvement and endless variety, that it pays us for every effort at careful culture. But it is sure to run back if neglected. I find it essential to select seed of the best varieties, and plant them when ready in beds somewhat closer than needed; then I dig out the poorer sorts when they come to bloom. Better yet, when you get a fine strain, divide the roots and so multiply it. I grow this flower along my fences, and border my fields with it. It is grand at a distance, running from purest white to nearly black. One strain of white hangs down its semi-double flowers like lilies. Sow in September or October for next year's planting; but if sown late it had best be in a cold frame. No flowers should be grown without special attention be paid to improvement. If we are slovenly enough to allow the fruits or flowers to retrograde on our hands, we are retrograding also.

Another flower that I am never tired of is the lily. It is a constant wonder that, cheap as these bulbs now are, they are not more generally in cultivation. I find hyacinths everywhere, but not lilies, except coarser sorts. I expect that one reason is that the very soil and richness that suits a Hyacinth kills a lily. Manure is death to most of them. The Longiflorum or Easter sorts are generally classed as hardy, but are not abso-

lutely so. An open winter generally puts an end to them.

It is best to cover all lilies with some coarse litter, leaves or evergreen boughs. The Candidum is so superb that it should be grown in masses everywhere. The fragrance is superb. I have had Auratums in bloom for nearly three months. I think this fine lily is sporting in its habit. The early flowering have shorter stalks and smaller flowers but richer colors. The Speciosm is for general planting about as valuable as Candidum, being quite hardy and noble in colors and fragrance. I hope thousands will invest this fall in a bed of lilies. Select Candidum, Speciosum, Auratum, and the little Siberian lily, with a plenty of native meadow lilies.

I heartily recommend still more attention to gladioli. The flower is magnificent in coloring, and of endless variation in flakes and stripes and selfs. The Gandavensis stock offers us thousands of truly fine varieties, and any one can with attention raise for himself choice seedlings as good as the best. For five years past these have been rivalled by a strain of Gladiolus Lemoinei. Now we have a very fine set of crosses from Purpurea, Auratus and Gandavensis. These will stand a good deal of attention. So far these flowers are scentless. This is a great drawback. It may be in time remedied by farther efforts in the way of selection and crossing. Turicensis is a new cross offered this spring.—*Popular Gardening*.

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE—II.

THE PROTECTION OF SHADE TREES IN TOWNS AND CITIES.

IN the February, March and April numbers of the CANADIAN HORTICULTURIST of last year, the writer called special attention to the care of shade trees, and dealt somewhat fully with some of the main causes which were operating to produce the diseased conditions so commonly met with in our towns and cities. The causes were grouped as *physiological*, such as lack of air, water, and food; *insects*; and *fungi*. It is evident that there is an awakening in several quarters in the matter of care of shade trees, if one may judge from the reports of some of the horticultural societies. The planting and protection of shade and ornamental trees have been left too much to the individual who has made no special study of the conditions under which trees attain their best development.

The citizens of New Haven, Connecticut, have already taken this matter in hand, and as a result of their action a bulletin has been issued on "The Protection of Shade Trees in Towns and Cities," which deals with some of the causes of the present condition of the shade trees of that city, and makes certain recommendations to the authorities. A summary of the causes stated in the bulletin may be interesting to our readers.

Briefly stated they are, (1) Old age; (2) Lack of water and air about the roots; (3) Lack of plant food; (4) Mutilations of the trees; (5) Poisoning by illuminating gas; (6) Insect injuries; (7) Lack of knowledge and care in planting; (8) Electric currents from wires.

The recommendations made for the removal or abatement of these causes are valuable, and should be studied carefully by all interested in shade tree protection.

1. "For old age there is no remedy," although the life of the trees may be lengthened by proper care.

2. Trees would grow better if they were planted on the lawn side of the walk instead of near the curb. The space for the growth of the roots would be greater, watering could be done just as well, and the trees would be out of the reach of mutilation by horses.

3. To supply plant food, an annual spring dressing of an odorless fertilizer is recommended. The composition of the fertilizer is given as follows:

50 lbs. nitrate of soda.

300 lbs. cotton seed meal.

100 lbs. acid phosphate.

100 lbs. muriate of potash, and costing about \$8.00.

This is sufficient for an acre.

4. City By-laws, if enforced, would soon prevent many of the mutilations of trees, and all trees near the curb should be protected by frame or by wire netting.

5. The damage done to trees through poisoning by gas could be lessened by compelling the gas companies to pay for the injuries done.

6. Against insect attacks, spraying with some poisonous substance for leaf-eating insects, and with kerosene emulsion or whale-oil soap solution for sucking insects is recommended.

7. The cause of unsymmetrical trees is usually poor nursery stock, or poor judgment in selecting the species, or unwise location of trees, or improper planting, or lack of care after planting. A town or city forester is a necessity if the foregoing defects are to be remedied. The forester's

duties would be to take the entire care of the trees in the streets, to apply remedial measures wherever necessary, to remove dead trees and plant new ones, and to es-

tablish and manage a city nursery, which would supply the new trees when required.

W. LOCHHEAD.

O. A. C., Guelph.

CHERRY TREE ON THE TABLE.

SOMETHING new is promised in the way of a society fad, and the very wealthy New York set, which is always looking out for fresh opportunity to squander money, is pleased greatly by the novelty of the idea, says the Boston Transcript.

During the present winter no really swell and properly-equipped dinner table has been considered complete on a festive occasion in the house of any fashionable millionaire unless there is a dwarf cherry tree for an ornament—at least one cherry tree, that is to say, though there may be as many as half a dozen. These trees will bear actual fruit, ruddy ripe, which the guests are expected to pluck for themselves when dessert time arrives. Not more than 100 cherries will be on each tree, but, inasmuch as they will be of extraordinary size and delicious quality, besides being so unusual a luxury, this number should suffice for a small dinner party at all events—one of those ideally managed entertainments at which, in accordance with accepted theory in such matters, the persons present are not fewer than the graces nor exceeding the muses numerically.

These dwarf cherry trees have been evolved by the ingenuity of French gardeners, and during the last winter they have been the vogue in gay Paris. That they cost a good deal of money goes without saying, inasmuch as the fruit has to be forced by special processes in the greenhouse, and, the little crop once picked, there cannot be another until a twelvemonth

later. The French are wonderful at this sort of thing, having developed the art of horticulture along certain lines to a point undreamed of on this side of the Atlantic.

The cherry trees, as they appear on the dinner-table, are four or five years old, but have trunks only about an inch and a half in diameter. They have never been permitted to grow more than three feet high, being kept cut down to that point, while most of the branches are lopped off, so that the little tree has a wholly artificial aspect. At the proper time it is set in a pot and placed in the hothouse for the purpose of forcing it to fruit. And finally, when the fruit appears, most of the cherries are removed, while as yet immature, with a pair of scissors, only 100 or so being allowed to ripen. As a result they have a size and quality far superior to the best of ordinary cherries.

Rich people in Paris are not less reckless of money expenditure than are those of the smart set in New York, and there is probably no place in the world where fruits of rare or exceptionally delicious varieties command such extravagant prices. The first cherry that was offered in the Paris market this year brought 20 francs, or \$4—not a cherry tree, mind you, but a single cherry. But then it was the only cherry for sale on that day, and so it may be said to have been relatively cheap. It was purchased by Count Boni de Castellane, or, more correctly speaking, was bought for him by his order.



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

OUR HORTICULTURAL SOCIETIES will be pleased to learn that arrangements are now being completed by the Department of Agriculture for the sending of a lecturer to visit each affiliated society at an early date. We have great expectations of the results that will be gained by the regular visits of such a lecturer, for he will familiarise himself with the possibilities before such societies, and encourage them in working out the greatest usefulness. Gathering large numbers is not the aim in sending out the lecturers, but rather to gather together the few in each place who wish instruction, if it be only a baker's dozen of people in somebody's parlor.

FOR FERTILIZING ORCHARDS, says Farm and Home, leguminous plants have great value. The details of their growth, cul-

tivation and utility should be studied, that we may learn how and when to use the different varieties to best advantage. Their roots penetrate deep into the soil, making it more porous, and decompose more or less of the hardest substances with which they come in contact. The roots also support bacteria which have the power to change the free nitrogen of the air into plant food. The thick epidermis of the leaves prevents rapid evaporation from their surface. The heavy foliage shades the ground checking the loss of moisture by the direct action of the sun and wind, at the same time keeping the temperature of the soil at a lower point through the hot months than if clean cultivation was used.

MR. WARREN H. MANNING, in a report recently made to the park commissioners of

Des Moines, Ia., summarizes briefly the advantage of parks to a city as follows: "They preserve for all time beautiful landscapes that would eventually be mutilated or destroyed by private ownership. They provide a place where the native flora and fauna may be preserved and perpetuated. They have a sanitary value in removing noxious gases from the air and in preventing the contamination of water courses. They promote public health by providing a place where nervous and sick people can frequently go to enjoy quietly a complete change of scene and surroundings, as well as a place where energetic and youthful persons can frequently engage in all active forms of recreation. They have an educational value by providing a place where growing plants and animals, geological, topographical and soil conditions and methods of propagation and cultivation may be studied. They add to the value of adjoining private property by giving an assurance of permanently attractive conditions. They make a city more beautiful and desirable as a place of residence, conditions that add to the pleasure and comfort of all citizens, and tend to keep in and draw to a city people of wealth, influence and leisure."



FIG. 2023. FLEMISH BEAUTY PEARS.

OUR friend, Mr. W. G. Ross, of Picton, the energetic Secretary of the Picton Horticultural Society, kindly sends us the accompanying photograph, showing two Flemish Beauty pear trees raised in the Custom House garden. The two trees bore, last fall, about fourteen bushels of fine fruit.

QUESTION DRAWER.

The Best New Grape.

1202. Sir,—Please say what you consider the best and newest grape out for size, flavor and earliness of ripening.

HENRY LAMBERT, Ottawa.

The finest grape of those recently introduced is the Charlton, so far as quality and the size of fruit is concerned. It is being introduced by John Charlton & Co., Rochester. We do not know how hardy or productive the vine itself is. Campbell's Early is another excellent variety of the Concord type, as early as Moore's Early and superior to that variety. The vine is a

strong grower and hardy. It may be purchased from any of our nurserymen.

Trees For a Small Lot.

1203. SIR,—Please advise me as to how many plum, pear and cherry trees and grape vines I can plant on a city lot fifty feet wide and two hundred feet deep. The house and shrubbery would take about one-half, leaving about 50 x 100 for trees.

M. E. B., Toronto.

In a city lot the trees could be kept well headed in and planted a little closer than in the country orchard, but for standard pears, and for plums and cherry trees, twenty feet apart is close enough. If our correspondent

were to plant four rows lengthwise, one along each border, and two rows in the interior, the rows would of course be about sixteen feet apart, a little close but possibly allowable if the trees in the rows were 20 feet apart. Planted this way, twenty-four trees could be planted in the space under consideration, or eight trees of each kind of fruit. If dwarf pear trees were used, they could be planted about twelve feet apart. Grape vines are usually planted from eight to ten feet apart in a row, with a wire trellis, or they could be made to climb upon a fence or woodshed.

Apples for Export.

1204. SIR,—I have fifty trees of Russet apples which are not doing well on my land, heavy clay, and I wish to top graft them. Will you please say what sorts you would recommend for export, and what is your opinion of the York Imperial.

R. McINTOSH, Newcastle.

The York Imperial is highly valued as an export variety, where it succeeds, but we know of no one who has tested it in Canada. The varieties most valued with us for export are—Summer: Duchess, Astracan and Alexander. Fall: Blenheim, Gravenstein. Winter: Cranberry, Spy, King, Ontario, Baldwin and Ben Davis.

Kieffer Stock for Top Grafting.

1205. SIR,—I note in your issue of January 1900, page 21, an address from Mr. G. T. Powell, of New York State, on top grafting. He says Kieffer is good stock for "Anjou" and "Bosc," and he is apparently speaking from experience. Four years ago I grafted five Duchess d'Anjouleme on good healthy Kieffer stocks, and one Duchess on seedling stock. The union was perfect and the growth healthy and luxuriant, but the following year one of the Kieffers died, root and branch. The other trees have kept up good healthy rapid growth in the tops, but the trunks are gone with dry rot. The Duchess on seedling stock is all right. This is my experience with Kieffer stock for top grafting. Have seen Kieffer recommended as the best of stock for grafting in a good many article in the periodicals. Would like to hear from others on the subject, and would feel obliged for an expression from yourself.

W. B. STEPHENS, Owen Sound.

The writer has an orchard of bearing Kieffer pear trees, the fruit of which is evi-

dently to be very soon in disfavor in all markets on account of its poor quality. He is therefore determined either to root out the orchard or top graft with some other variety. A year ago the writer begun by setting scions of Anjou and Bosc, as directed by Mr. Powell, and hopes soon to be able to speak from experience upon the suitability of this stock. In the meantime we would be glad to have others relate their experience.

Pears on Apple Stock.

1206. SIR,—I find it necessary to either remove some Northern Spy trees or graft them to other fruit of less luxuriant growth. Can I top-graft with Keiffer pears on Northern Spy, and would the Bosc succeed if grafted on apple stock?

Yours, etc.,

MEAFORD.

We have tried apples on pear stock, but not pears on apple stock. The union was good, and has remained healthy for the past twelve or fifteen years, but the scion never was very vigorous nor very fruitful. We do not think Keiffer would succeed at all on Spy, and is not of any value even if it did; Bosc would be more likely to do well, but some variety of apple would succeed better.

Hybrid Plums.

1207. SIR,—I am thinking of doing a little experimenting on a small farm I own, by planting out a number of stones of hybrid plums, in the hope that in this way possibly some really good ones may be obtained, hardier than most of the Europeans. I wish to obtain as many of these stones as possible, but do not know where to get them. Can you help me by putting me in communication with persons who grow such plums? I refer particularly to such as America, Climax, Gold or Golden, Gonzales, Juicy, Apple, Wickson, etc. I know I am late for this year (unless some can be found under the trees), but I wish to make arrangements for next year. I will gladly pay for the seeds.

M.

Would any of our readers who have pits of these plums on hand, or who expect to have them next season, please write to M., care of CANADIAN HORTICULTURIST, Grimsby.

Sutton Beauty Apple.

1208. SIR,—The apple called Sutton Beauty is highly spoken of by name as a valuable sort. Do you think it safe to plant largely for growing fruit for winter shipment to Europe, in a district where

Baldwin, Golden Russet, and Ben Davis give good results? Please describe it and its good and bad features, both tree and fruit, and oblige
Georgetown, P. E. I. F. G. BORYER.

This apple has proved valuable in the United States, but is not grown commer-

cially in Canada, and not yet tested long enough to say whether it is adapted to our country. It is rather large, roundish in form, yellow, with crimson check. It ripens in December.

Open Letters.

Export Packing and Bills of Lading.

SIR,—On my return home to Guelph I gave Mr. Hutt my name and membership fee of your Association. I would like very much to be kept posted of any meetings you may have, although I did not say much at your meeting. I have been very much interested in the business, and have been trying to get this act about long before your association had the matter up.

You remember I suggested that our ocean bills of lading should be made out so that should the fruit miss the boat originally intended, for the Foreign Freight Agent of the delivery Railway Company would hand the apples over for the next steamer sailing, the ocean bills would be made out so as to go per any line of steamer—Allan, Dominion, Beaver—so that the insurance policy would be made out accordingly for any of the three lines to Liverpool, and in the same way to other ports, and this would save our apples from laying over in the box cars and hot wharf in Montreal over a week sometimes.

If you have any printed reports of our meeting with the Hon. Sydney Fisher, I would like to get two or three copies so as to send them to receivers interested.

I would like the Bill to deal with size of the so-called Apple Bushel Box for export; the California box is one size, and the Australia box another size, and the Ontario varies from that of the United States box.

The Ontario apple case for export, inside measure is 21 inches long, 10½ inches wide and 11 inches deep.

The Australia apple case is made 20 x 9 x 15, outside measurement, ½ inch side, top and bottom and ¾ inch ends.

I believe if the barrel was made 28½ inch stave, we would get much better barrels, as that is the size of the stave used for flour for the West Indies, etc., and I think the flour trade in Canada will come to the 28½ inch stave bye and bye.

R. A. BUCHART, Guelph.

A Good Beginning.

SIR,—I am starting a fruit garden; of course it is on a small scale, but you know, sir, that from the little acorns the big oaks grow; and so a few rods of ground planted to fruit now, may in time be increased to acres. Last fall I planted about 400 berry bushes and intend to plant 500 more this spring; and I intend to plant 40 plum trees next fall. The few plum and pear trees I planted

some time ago are doing nicely. Besides the fruit garden, I have started a Ginseng plantation; I have 500 seeds planted in the forest and about 2,000 small plants ready to transplant this spring. It takes some time to get stocked with Ginseng, as the seeds require eighteen months to germinate, and then a period of five to eight years before the roots are ready for market. I tried an experiment with peanuts last summer on three different kinds of soils, and I had very good success. I planted a small paper of seeds and had two quarts of peanuts when dried. I cannot raise them here for profit, but with care can grow a few in the garden for home use. I am the first one in the township of Franklin that has started a combined garden stocked with fruit, ginseng and peanuts.

HERBERT FRIER.

Franklin Centre, Province of Quebec.

Too Many Varieties.

A subject which is of great importance to apple growers of this country, particularly at this time of the year when many are ordering trees for spring planting, and one which I intended bringing before the meeting at Brantford had there not been such an amount of other business, is the fact that the number of varieties of apples grown generally in Ontario is decidedly detrimental to our export and home trade. A few of the leading varieties are known in Great Britain, and while many other sorts may be equally as good in themselves, the fact that they are not generally known to the public makes them less valuable to the dealer.

Straight lots of one variety, or carloads containing not more than three or four, always make the best returns. For example, I had at that meeting two sales sheets from Liverpool, one lot was a load of Canadian apples of thirty varieties, and the other a shipment of Maine Baldwins; the former of course was an exceptional case, but as Messrs. Woodall & Co. wrote me recently, if our growers would get rid of 90 per cent. of the outside sorts they would all make far more money.

While I would not wish to say anything to disparage the enterprising efforts of our fruit-growers by seeking new varieties by way of improving on the old, I would ask them to bear in mind that Canada has now many varieties which suit our climate, are well known products of our country, are good carriers in their various seasons, and meet with a good demand, and, until some varieties are established as improvements on these, it is advisable to stick closely to the old sorts.

Among the leaders, I would submit Baldwins, Ben Davis, Blenheim, Canada Red, Colvert, R. I. Greening, Bottle Greening, King, Stark, Ribston Pippin, Golden Russett, Rox. Russet, Spy and Snow.

While the British market has generally shown a preference for red fruit, this year it has especially shown its appreciation of good Greenings; and it is often the case that when reds are plentiful, good Greenings in season command as good prices as most others.

We look upon the Baldwin as the King of Fruit, as an all-round apple from every standpoint, but the others in their season often sell higher, so it is well to have a proportion of them all.

Many apple growing sections of the U.S., especially Maine, are noted for shipments of straight varieties, and while it is not advisable to plant one sort only, it is well to limit the number of varieties.

Yours faithfully,

Toronto.

EBEN JAMES.

Origin of Scarlet Pippin.

SIR,—I saw in the report of meeting of Fruit Growers' Association, you said Mr. Jones was the originator of Scarlet Pippin apple. I wish to tell you he is not. The Scarlet Pippin apple originated over forty years ago at the back door of the residence now occupied by H. B. Heathers, Florist, about one mile west of Brockville, and near the St. Lawrence river, where part of the old tree can still be seen. I have known it for over thirty years, and can say it is one of the best selling apples on the Ottawa market.

Brockville.

ALBERT ABBOTT.

Report on Plants and Trees Received.

SIR,—I will at this late date give you a report of the trees, plants, etc., received from annual distribution by the Ontario Fruit Growers' Association. I have not kept a list of dates when received. First on the list is Simon's plum, which, with me, is tender, and has died down to ground. The Russian apricot, of which I received two at different times, both died below where budded. The Pearl gooseberry has done fairly well, giving

small crops of fruit. Conrath raspberry is hardy, and bears a fair crop. The Sand cherry is very tender, and has died out. The Siberian pea tree is perfectly hardy, and has blossomed last two years. I also received two Oregon pines and two Douglas firs. The firs were small and neither grew. One pine is growing, and is perfectly hardy. Crimson Rambler rose is doing nicely; it has bloomed twice, but was badly used up last summer with thrip. The gladiolus bulb sent out was very fine. The wistaria did not grow, it was dead when received. In 1899 I received two Columbian raspberry bushes; they had started from the tops and dried up when received; neither of them grew. I also had two varieties of Russian apple trees, but accidents happened to both and cannot report on them. I have a scion from one, growing in another tree, and may report later. Two years ago last autumn I received three crowns of club-form mammoth rhubarb from our friend, the late Charles E. Brown, of Yarmouth, and last summer had a stalk weighing two pounds, and several others nearly as large. I have experimented with several varieties of grapes, but the Early Amber is the only one that ripens here. I have also tried peaches, but the blossom bud always winter-kills. I tried laying them down, and that fixed them outright. Nearly all varieties of apple do well here. For fall use the Gravenstein is by far the best; the Baldwin, Golden Russett and Greening are hardy. I had two Wealthy trees; one bore well for three years, and then the bark came off all around the tree, and it died; the other is growing. Ontario is hardy and a good bearer but the fruit is quite sour. The Oldenburgh is all right but will not compare favorably with Gravenstein either in tree or fruit. Hubbardson's Non-such, I think we have two varieties of, one corresponding to plate in vol. xiii, Canadian Horticulturist, April number, the other came from Yarmouth, and was said to be true to name by the late C. E. Brown. The tree is tender and inclined to canker. The fruit is more conical and not as red, but fine grained and of beautiful flavor.

HENRY C. SABEAN.

New Tuskett, Dec. 28, 1900.

Our Affiliated Societies.

CAYUGA.—The county has granted us \$50.00 and the town, \$20.00. We hope to have a public garden or two; keep Arbor Day by planting out 500 trees; make the beginning of a hedge about Court House Grounds; while there will be a more or less enthusiastic rival among the individual members over their private gardens. At our High School we have one tulip bed of 1500 bulbs; it was magnificent last season.

With a considerable expenditure ahead of us for a new society will you kindly send us a list reliable houses to whom we may write for price lists and discounts.

Cayuga Society.

Yours truly,

A. K. GOODMAN.

COBBOURG.—The annual meeting of the Horticultural Society was held in the Council Chamber on Wednesday, Jan. 9th. The Treasurer's report shows that the total receipts were \$294.44, expenditure \$255.88, leaving a balance for 1901 of \$34.56.

For the year 1900 each member received "The Canadian Horticulturist," and a premium from the same. In addition to this, our society distributed the following premiums: 6 gladiolus, 1 peony, 2 anemones, 8 hyacinths, 3 lilies, (candidum) all of 1st quality, which retails for not less than \$2.50. Such liberality on the part of the Directors should be an incentive in securing a

large membership for the present year. Will the old members kindly renew the subscription before the 15th of Feb., and select their premium for the year 1901, and all who wish to become members will please call on the Secretary, Mr. A. W. Pringle, as soon as convenient, so that they may have their names on the list and thereby secure the full benefit of the premium to be distributed for the present year. Mr. C. Waite is authorized to receive subscriptions.

COBOURG HORTICULTURAL SOCIETY.—The annual meeting of the Coburg Horticultural Society was held in the Town Council Chamber according to statute.

The Secretary, H. J. Snelgrove, read the report of the Directors. The society last year purchased their flower bulbs in Holland, and the Directors recommend that the same be done this year, as the experiment had proved very successful. The Secretary was representative to the Ontario Fruit Growers' Association, and succeeded in securing the meeting of the Association at Cobourg next year.

On motion of Mayor Huycke, seconded by Mr. Barker, the report was adopted, and a vote of thanks tendered to the Secretary.

Mr. D. Denton, Treasurer, reported receipts for the year, \$223; expenditures, \$221.42.

The Society then proceeded to the election of officers.

The Secretary said he had received a communication from Mr. Woolverton, stating that the Fruit Growers' Association could not yet promise

to send out lecturers this year. But Mr. C. C. James, Deputy Minister of Agriculture, had kindly promised that he would address the Society at an early date.

Mr. Denton spoke about the spring distribution, and he thought each member should report upon the plants received by them. Instead of getting all they could for the money, they should get the rarest and latest varieties.

Mr. Snelgrove gave a short report of the Ontario Fruit Growers' meeting at Brantford. He said the convention was composed of about 200 of the best men in the province. He wished to get the names of the fruit growers of this county, so as to invite them to attend the meeting, which will be held in November.

Major MacNachtan said it would be well to appoint a deputation to wait upon the Counties' Council, and get them interested. This was a matter that interested all fruit growers' very much.

The President, Vice-Presidents and Secretary were appointed a committee to wait upon the Counties' Council.

The following officers were elected by the Directors:

Secretary—Major Snelgrove.

Treasurer—D. Denton.

NOTE—Since the above meeting at which my letter was read, arrangements have been completed with the Department of Agriculture by which a regular lecturer, and perhaps two of them, will be sent annually to address our affiliated societies.

L. WOOLVERTON.

OUR BOOK TABLE.

BOOKS.

THE PRINCIPLES OF VEGETABLE GARDENING, by L. H. Bailey, pp. 458, New York. The McMillan Co., 1901. Price, \$1 25.

This is another addition to that excellent Rural Science Series, edited by Prof. L. H. Bailey, of Cornell University. Science is progressive, and books written years ago upon fruit and flower culture are now becoming antiquated in many particulars. Prof. Bailey's works on the other hand are fresh and up to date; besides they classify all information in such a manner as to be of the greatest service to the cultivator. The book is divided into two general parts: Part 1st, General View; part 2nd, Vegetable Garden Crops: Part 1st includes the layout of the plantation, glass, soil and treatment, tools, seed, management, working and storing; part 2nd. Root crops, Tuber crops, Bulb crops, Cole crops, Pot Herb crops, Salad crops, Pulse crops, Solanaceous crops, Cucurbitaceous crops, Sweet Corn, Sweet Herbs, Perennial crops.

We highly commend this work to our readers.

FARMERS' GUIDE to Fertilizers and their services, published by German Kali Works, 91 Nassau street, New York.

REPORTS.—Michigan Horticultural Society for 1899. Missouri Horticultural Society for 1900.

Central Experimental Farm, Bull. 36. Results obtained in 1900 from trial of plots of grain, fodder corn, field roots and potatoes, by Wm. Saunders, L. L. D., Director of Experimental Farm.

CATALOGUES.

FRUITS, ETC.—The 1899 supplement to New Creations in Fruits and Flowers, Luther Burbank, Santa Rosa, Cal. Horticultural Establishment, Baltet Bros., Troyes, (Aube) France. Emerald Plum, History, Description, etc., E. D. Smith, Winona. Dominion Nurseries and Fruit Farms, St. Catharines, Ont., 1901, Smith & Reed. Graham's Annual Wholesale Price List, A. W. Graham, St. Thomas, Ont. Northern Grown Fruit and Ornamental Trees, J. H. Wismer, Port Elgin, Ont. Central Nurseries, 21st Annual, A. G. Hull & Sons, St. Catharines. Choice Strawberry Plants, Chas. H. Snow, Cumming Bridge, Ont. Grape Vines, Lewis Roesch, Fredonia, N. Y. Green's Nursery Co., Catalogue, Spring, 1901, Rochester, N. Y. R. M. Kellogg's Great Crops of Small Fruits, Three Rivers, Michigan. J. G. Harrison & Sons, Nurseries, 1901, Berlin, Md.

ORNAMENTAL TREES AND PLANTS.—Thos. Meehan & Sons, Germantown, Pa., nurserymen and landscape gardeners. J. Gammage & Sons, London, Ont., Plant Novelties. Gladiolus Trade Price List, Geo. E. Dickson, 1 Broadway, N. Y.

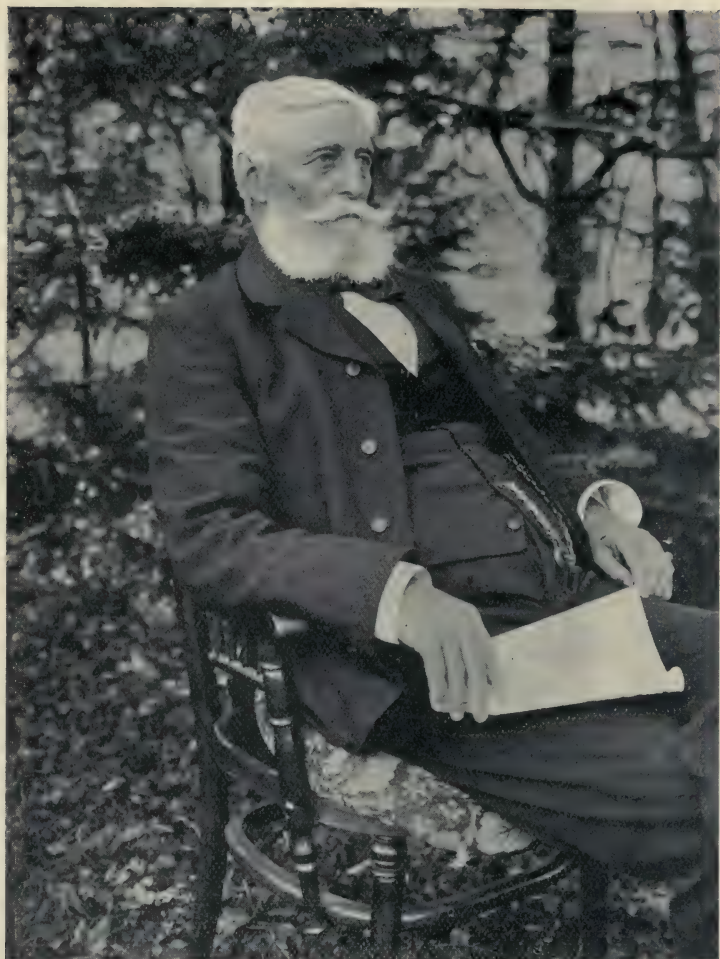


FIG. 2024. MR. J. W. BIGELOW, PRESIDENT N. S. F. G. A.

THE CANADIAN HORTICULTURIST



** APRIL **

NOVA SCOTIA FRUIT GROWERS.

AT the especial request of the editor, Mr. Bigelow, the time honored president of the Nova Scotia Fruit Growers' Association, has forwarded us his cut for use in our journal. We had the pleasure of an acquaintance with him at the World's Fair, in 1893, when he was in charge of Nova Scotia's fruit exhibit, and we learned to appreciate his genial manner and eminent ability.

Mr. Bigelow has done much towards the development of the fruit industry of Nova Scotia, both by example and by precept. Ever since 1890 he has deservedly held the position of president. Through his efforts an excellent School of Horticulture has been established at Wolfville, and efforts are being made to introduce into the legislature a scheme for the establishment of a model orchard of six acres in extent, in every county of the province. This is somewhat after the scheme of our fruit experiment stations, only a little more ambitious, for a model orchard is not easy to make, and its name would bring plenty of criticism.

In Mr. Bigelow's annual address before the association at Halifax, on Wednesday

evening, Feb. 13th, he drew attention to the excellent provincial exhibit made at Paris, and regretted that no steps had been taken for a display of Nova Scotia fruit at the Pan American; and, referring to the value of her fruit crop, he gave the following as an approximate estimate of the same:

Annual value of fruit crop, average about.....	\$1,000,000
Net receipts for apples sold in Great Britain, 1899 crop.....	800,000
Net receipts for apples sold in Great Britain, 1900 crop.....	200,000
Value of orchards now bearing, 9,000 acres, at \$500 per acre.....	4,500,000
Annual additional value to permanent wealth of province, by young orchards, 5,000 acres at \$200 per acre.....	1,000,000
Number of men employed in fruit culture, 7,000.	
Number of men employed in barrel and box factories, nurseries, fertilizers and other industries required by fruit culture, 4,000.	
Freight paid for fruits, railroads.....	60,000
Freight paid steamboats for do.....	200,000

The report of the N.S. School of Horticulture was presented to the association by Mr. W. C. Archibald, of Wolfville, chairman of the Board of Control. Mr. Archibald lives at Wolfville, and has made himself widely known throughout the province, for



FIG. 2025. W. C. ARCHIBALD.

his success in fruit growing, having transformed a piece of unimproved land into the well known Earnscliffe fruit gardens. He has been foremost in trying plum growing for profit, and has proved that this fruit is more successful even than the apple in Nova Scotia. Last season he marketed 50,000 lbs. of plums off twelve acres of a plum orchard. Peaches, pears, cherries, quinces, etc., have been grown by him on the same land between his apples and plums.

Mr. Ralph S. Eaton made a vigorous and eloquent speech in favor of a union of the Agriculture School, at Truro, and the School of Horticulture, at Wolfville, into one first-class Agricultural College for the maritime provinces.

Mr. Peter Innes introduced a resolution for better ocean transportation of apples, seeking the appointment of a commission that would look into present abuses in this trade and see that they were corrected.

The same gentleman also introduced a resolution looking to an improvement in

railway freight classification which reads as follows :

Whereas the freight classification of apples by the railways of Canada was fixed at a time when the production was small and prices high, and—

Whereas since that time production has enormously increased while prices have been continuously falling, and

Whereas in Western Nova Scotia apple growing has become a great staple industry, averaging 500,000 barrels a year, and

Whereas the said classification has to be submitted to and approved by the Governor-in-Council ;

Therefore resolved, That this association, recognizing that the present classification does not meet with the altered circumstances, and is oppressive to the apple growers and shippers of this province, do respectfully memorialize the Governor-in-Council to take the subject into early and favorable consideration, it being suggested that in the view of this association apples should be placed at least on an equal footing with flour.

The Standard apple barrel was also mentioned by Mr. Innes and the following extract from the amended Weights and Measures Act was given :

Chap. 37, 1900—An act to amend the Weights and Measures Act. Assented to 7th July, 1900.

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :

1. The section substituted by section 2 of chapter 28 of the statutes of 1899, for section 18 of the Weights and Measures Act, chapter 104 of the Revised Statutes, is repealed, and the following is substituted therefor :

18. All apples packed in Canada for export for sale by the barrel in closed barrels shall be packed in good and strong barrels of seasoned wood, having dimensions not less than the following, namely ; twenty-six inches and one-fourth between the heads, inside measure, and a head diameter of seventeen inches, and a middle diameter of eighteen inches and one-half, representing as near as possible ninety-six quarts.

2. When apples, pears or quinces are sold by the barrel as a measure of capacity, such barrel shall not be of lesser dimensions than those specified in this section.

Another clause provides for a penalty of 25 cents a barrel for breaking this law.

Of the English apple markets, Mr. J. H. Burgess of Canniny spoke as follows :


While in England this season I made inquiry as to the prospect for disposing of evaporated and canned apples, and found there was an unlimited demand for this product. I interviewed a number of firms dealing in these goods, and found them ready to do business. They like canned apples, as in this form they are always ready for use. The

early shipments of Gravensteins this year were really not good for anything when they arrived in London. I saw the Mediana's cargo, and the apples were utterly useless. When the Gravensteins commenced to arrive in these bad steamers it corroborated the opinion that they entertained over there, that our Gravensteins were a failure. There are some Gravensteins that came out of the barrels which looked fairly well, but the flavor was gone. I firmly believe eight days is the proper time to deliver them: the high temperature in the ships' hold causes the apples to decay rapidly. To successfully ship soft apples we need a 15-knot service. Last spring apples brought fabulous

prices—as high as 32s. per barrel—from twenty-four to thirty-two shillings per barrel, I saw Fallawaters selling at thirty-two shillings, and Golden Russets at thirty-four shillings. There is no danger of Canada producing more apples than is demanded.

I was in Paris a month, and I took particular notice of our apples sent over there in cold storage for the Exposition, and I asked the man who had charge of that exhibit if there was any danger of our supply of apples exceeding the demand. He replied there was not. He said he could sell eight hundred thousand barrels in Germany alone if the quality was guaranteed.

PRUNING OF FRUIT TREES.

HE PEACH.—This tree requires special pruning to keep in a compact and stocky form, as it tends to grow largely at the ends of the branches, and to produce few laterals on the main branches. While the trees are young, at least one-half of the last season's growth should be cut off during the latter part of the winter, varying the amount cut from different parts of the trees so as to produce a regularly formed head. As the trees grows older, this pruning reduces the number of fruit buds, and thus lessens the cost of thinning and improves their growth. It also often becomes necessary to cut back some of the main branches well into the centre of the tree to force a lateral growth of new wood, without which the long branches would soon break down when heavily loaded with fruit, or with foliage wet with rain in a high wind.

THE PLUM AND CHERRY.—The special pruning required by these two fruits is the heading in of strong leading shoots, while young, to cause a stocky and compact growth that can be easily cared for. Pinching the shoots while young will often accomplish the same end.

THE GRAPE.—The grape vine will stand more pruning without injury than any other fruit crop we grow, and, by the modern method of training, the whole vine is practically renewed every two years. The fruit is grown on the vigorous young wood of the last season's growth, and the more vigorous

and well ripened this wood is, the better will be the product. Pruning may be done at any time after the leaves fall up to March 1st. Summer pruning, or pinching is practiced to force the growth where desired, that is, into the fruiting canes and into the next season's fruit, and no surplus canes should be grown that must be cut and thrown away at the end of the season.

RASPBERRY AND BLACKBERRY.—The fruiting canes of these fruits should be cut out as soon as the crop has been harvested, that all growth may go into the new canes that are to produce fruit next season. Such new canes as are to be preserved for next season's fruiting should have the end taken off when they reach three feet in height, and all weak canes and those not needed to make a well-stocked field should be treated as weeds and be hoed or pulled up.

CURRANTS AND GOOSEBERRIES.—An annual pruning is generally given these fruits, cutting out all wood over three years old, keeping the bushes in a compact and stock condition that will hold the fruit up from the ground, where it will not be splattered by the soil during heavy rains, and leaving a limited amount of strong wood two or three years old, which produces larger fruit than will grow on old canes. All canes looking sickly, which generally indicates a borer in them, should be cut out and burned as soon as discovered.—*Prof. Maynard, in Massachusetts Experiment Station Report.*

PRINCE EDWARD HORTICULTURAL PARLIAMENT.

WITH us here in Prince Edward Island, horticulture is making steady and substantial progress. It is true there are some who feign to have no faith in scientific methods and still adhere with a tenacity worthy of a better cause to the rule of thumb in horticulture as well as other matters, but their number is growing smaller and smaller, and beautifully less. Ignorance dies hard anywhere but especially in high places, and it is really wonderful how sometimes one has to fight for ordinarily advanced methods with those who should be formally engaged in forging forward along those lines. The exigencies of the times project some people into positions for which they have not a single qualification. It takes time to smother all those things out; it will do so finally. The true friends and lovers of horticulture must be persuaded to be patient and unselfish and on no account allow their enthusiasm to cool on account of certain incongruities in organization, no matter how thrilling.

The year that has just closed has been a fair fruit year in Prince Edward Island. It has not been by any means a full year, however. There was a considerable yield of early apples thrown upon the market even earlier than the season by the great gales which swept over the province in August. We have no way of handling a glut of this kind. The later varieties were also affected by the winds—blown off where not protected and rendered valueless. In some cases, however, and with some varieties, the harvest was satisfactory, both with regard to quality and quantity. Spraying as well as thinning, when necessary, undoubtedly makes far superior quality in wet years, like last especially.

The annual meeting of our F.G.A. took place at Charlottetown on the 6th and 7th

of February. We had the great pleasure of having Professor Macoun, horticulturist, of the Central Farms with us. In order to get him we had to hold our meeting immediately after that of the Nova Scotia association which he was attending. February, on account of its boisterous nature, is no month to hold meetings here, but we sometimes have to make shifts to suit circumstances. The weather was anything but favorable for a large attendance of country horticulturists, and therefore they did not come out in such numbers as we could have desired, but a number of citizens filled up the places and all the sessions were fairly well attended.

At the first session, after the reading of the minutes, the president delivered a well written and carefully thought out address on the general purposes of the fruit industry under his presidency. He asked for action to prevent the introduction of the San Jose scale and pleaded for government assistance to carry out the schemes of the association. The members of the government, including the Premier, were present. His address was unanimously received and ordered to be printed.

The first paper—that of the writer on “Forestry and Horticulture”—was then read and elicited a discussion which was carried on through all that session. This important question of Forestry is doubly important to P. E. I., “scarcely 100 years ago,” said the paper, “and Prince Edward Island was one insular forest; to-day not enough lumber could be found on it to keep one good steam mill agoing the year around; many of our farmers cannot secure wood enough on their holdings for the kitchen stove alone; a majority of the holdings are absolutely without protection from the sweeping winds; the springs and streams which once watered the meadows

have dried up and disappeared with the forest, and sunburnt fields, once laden with luxuriant crops, scarcely render any return to the husbandman's toil. The climatic influence arising from these changed conditions, although not so marked as in inland countries, are altogether against us."

It is not strange that an island like Prince Edward with such a coast line should be a great loser by floods and freshets as the great woods which covered it are cut away. The loss to the fruit growers has been extensive, too, and if measures be not taken to repair the general removal of the forest, there may well be grave doubts entertained as to the island's future as a fruit country. This feature professional horticulturists have been quick to grasp, as will be seen by another excerpt from the same source.

"Writing to me last summer just before taking passage for Europe, Professor Macoun, whom we are all glad to have with us here to-day, said :

"'Whenever and wherever you can, preach the preservation of your woods. If the protection afforded by your fine woods is removed, I fear that fruit growing there will not be nearly so successful as it promises to be.' Nobody doubts the truth of this statement. But without a healthy public sentiment, an awakening to the knowledge and needs of the case, as well as proper action on the part of the government, what can be done? Prof. Macoun, no doubt, believes that our province will lose its adaptability for fruit raising, not only by the fact that the loss of the forest may bring adverse climatic conditions, but also because we must also protect our trees from the summer gales to mature good fruit, no matter how well they may do otherwise. This question of protection enters very largely into the economics of fruit-growing. The past year has demonstrated that, beyond the peradventure of a doubt. Ontario alone lost millions of

dollars by her storm-swept orchards, the other provinces were also heavy losers, and here those who had no proper windbreaks have lost their entire crop. I remember well asking an enterprising tree agent from New Brunswick, where proximity to the United States makes men veracious, if it wasn't necessary to get up a good windbreak in this country before attempting to grow apple trees. 'If our apple trees won't stand it out in the open I won't ask any man to plant them,' was his answer. They might stand it in the open, but stand is about all they would do. We want fruit—and to produce fruit in this country, apart from all other considerations, we must protect it, after it has formed on the trees. I have a windbreak on the N., N. E., and N. W., the exposed points of my situation, and while my neighbors' trees were swept early in August, I harvested my entire crop. The importance of forest protection to the fruit growers of the country cannot then be overestimated."

The Government which owned all the land originally has never moved to preserve any portion of our beautiful forest. We might be receiving a big revenue from our timber lands to-day, when revenue is so much needed, had some prudent system of reserve been adopted. The timber is gone and monetarily the country has not benefited to the extent it ought, while in every other way the wholesale slaughter of trees has been a great curse to it. The practical question is, what are you going to do about it? The representative men of the country, the Governor, Premier and ministers of the local government, Sir Louis Davies and the visiting professors and the press declared the discussion most timely and no doubt it will be productive of much good. This resolution crystallized the whole matter :

Moved by A. A. Moore, seconded by D. P. Irving, and

"*Resolved*, That the Government be asked to give its serious consideration to the

vital question of forestry by making reserves of the public lands wherever possible and encourage private afforestation in every way possible."

The next session was taken up principally with Prof. Macoun's masterly address on horticulture with special application to the condition of our province, and the general discussion which followed, as well as the questions with which it was punctured, proved how practical the gentleman had made himself. In this province we have been planting too close, pruning too scantily, spraying too rarely and not getting rid of objectionable stock by top-grafting or otherwise quickly enough, and, young as we are in the business, we have developed dishonest packing. The professor took up the samples of apples on exhibition and spoke most learnedly on their adaptability to our soil. From his examination of tree, fruit, our soil and climate he would recommend the following apples to be grown here :

Fall and early winter—Wealthy, Alexander, Wolf River, McIntosh Red, Fameuse, Gravenstein.

Winter—Ontario, Baldwin, Stark, Ribston Pippin, Ben Davis.

Sir Louis Davies, Minister of Marine and Fisheries, being present, delivered a very encouraging speech. He had long since convinced himself of the suitability of upland soil for apple culture. Indeed we could grow some varieties better than any place else. He knew that everybody marvelled at the expansion of the cheese industry on the island, and the amount of money it brought into the province. The apple industry would, he verily believed, do better if directed and fostered. He was delighted with the Fruit Growers' Association and the previous discussions he had listened to, and while it appeared that when any question, such as the proper package of fruit or the matter of marking and inspecting packages, came up on the floor of the House of Commons it was the signal for the greatest divergence

and variety of opinion, and it did sometimes appear as if it were next to impossible to have members reach common ground. He would promise to give the weight of his voice and vote every time on the side of the recommendations of the Fruit Growers' Association.

All this was very encouraging and the association, after considerable discussion on these important matters, adopted the following general resolution and named Rev. A. E. Burke, D. P. Irving, M. L. A. and A. A. Moore to carry out its provisions :

"*Resolved*, That a committee from the Fruit Growers' Association correspond with committees from the Nova Scotia and Ontario Fruit Growers' Associations with a view to secure a uniform package in which to pack fruit, and a uniform mark, as well as competent inspection, for its contents."

It was the general opinion that steamship space, properly fitted with cold storage, should be secured for the autumn months, at least for the consignment of fruit to Britain. The shipments made last year, although rolled about and not specially handled, turned out well; this year not much fruit awaits shipment, some Ben Davis from Mr. Boyver's orchard being the only considerable consignment I know of, and they will take almost any handling. Among those who are giving the question any study there seems to be a very marked preference for the Hanrahan system of cold storage, so successfully employed by the Ontario government, and it is hoped that it will come more generally into use.

The other matter which engaged the attention of the meetings, especially the splendid paper of Mr. John Johnson, on "Some phases of Island Horticulture," although of an entirely local nature, were full of interest and profit for those present, and merited and received their unstinted praise.

The Association elected Mr. Edward Bayfield, who was its first president after incor-

poration, again this year, and he no doubt with the old Board will do much to advance its interests in this opening year of the century. There is much to be done to fully

develop the fruit growing possibilities of Prince Edward Island, and we must earnestly bend our energies to the task.

Alberton, March 1, 1901. A. E. BURKE.

CENTRAL EXPERIMENTAL FARM NOTES—XV.

ALTHOUGH the weather has been less severe during the past month than during the previous one, the temperature has rarely risen above the freezing point. The coldest day in March up to the 14th was on the 3rd, when it was 9.5° F. below zero. There have been no heavy falls of snow this month. On March 10th heavy rain fell for a few hours and this, freezing on the trees, caused them to become thickly coated with ice, and they were so weighed down that many trees had large branches broken off them. Owing to the heavy covering of snow this winter there has been practically no frost in the ground, a most unusual occurrence here.

By the time the April number of the Horticulturist is published it will be time to think about tree planting and garden making, and as it is often difficult for a fruit grower to decide on what varieties of fruit to plant, the following list of those which have been found to succeed best at the Central Experimental Farm may prove helpful to those who live where the climate is much the same as at Ottawa.

APPLES—Summer—Yellow Transparent, Red Astrachan, Duchess of Oldenburg. Sometimes the Red Astrachan is a shy bearer. Autumn—St. Lawrence, Wealthy, and Alexander. Of these, Wealthy is the most profitable if well grown. It is inclined to overbear, and the fruit should be thinned, if necessary, to increase its size.

Early Winter—McIntosh Red, Fameuse, Scarlet Pippin, Shiawassee Beauty, Wolf River.

Winter—Scott's Winter, Gano, Red Ca-

nada, Salome, Golden Russet, Pewaukee, Ben Davis. Gano resembles Ben Davis somewhat, but is much more highly colored than that variety.

PEARS—Pears do not succeed well at Ottawa. The better varieties are not hardy, and the Russian sorts, though quite hardy, are poor in quality and much affected with blight. If there can be any discrimination made among the Russian varieties, Bessemianka is probably the best to plant. Flemish Beauty appears to be the hardiest of the better pears, and has fruited at Ottawa. Clapp's Favorite, also, may succeed under very favorable conditions.

PLUMS—Neither the European nor Japanese plums are safe to plant at Ottawa as a commercial investment. Under especially favorable conditions they may bear heavy crops, occasionally, but as a rule the fruit buds are killed. Of the European plums, Early Red, Richland, and Glass Seedling have proved the hardiest, the Early Red being probably the hardiest of the three.

American plums do very well, and some of them are so fine that they are well worth growing for market, especially where the European sorts do not succeed. If a judicious selection of varieties is made, the ripening period of these plums may be extended over a month.

Seventy-six varieties have now been tested here, and the following, given in their order of ripening, have proved the best :

Cheney, Bixby, Gaylord, New Ulm, Wolf, City, Silas Wilson, Stoddard, Hawkeye, Wyant, American Eagle, Hanmer.

CHERRIES—Practically no cherries are

grown in the vicinity of Ottawa, except at the Experimental Farm, the reason being that they will not succeed when treated in the ordinary way, as they are frequently root killed. Cherries propagated on Mahaleb and Mazzard stock have been, as a rule, root killed at the Experimental Farm. Cherries grafted and budded on the native Bird or Pin cherry—*Prunus Pennsylvanica*—have succeeded well. It is doubtful if cherry trees, even grafted stocks, will live to be very old at Ottawa, but by planting them closer than is the custom in the best cherry growing districts more fruit will be gathered while the trees are in their prime. The following varieties, covering a ripening period from the last week of June to the last of July, are some of the best suited for this district :

Amarelle Hat ve, June Amarelle, Shadow Amarelle, Heart-shaped Weichsel, Griotte du Nord, Orel, Cerise d' Ostheim, Brusseler Braun, Koslov Morello.

GRAPES—A large number of varieties of grapes have ripened at Ottawa, but many of these are uncertain, and it is not advisable to plant more than a few kinds. The following are the best of the varieties which ripen nearly every year :

White—Green Mountain, Moore's Diamond.

Red—Moyer, Delaware, Brighton, Lindley.

Black—Moore's Early, Rogers 17, Wilder. And to these may be added Campbell's Early, should it prove as satisfactory.

RED RASPBERRIES—Marlboro, Cuthbert, Loudon; also Clarke, Heebner and Sarah for home use.

BLACK CAP RASPBERRIES—Older, Hillborn, Progress.

PURPLE CAP RASPBERRIES—Shaffer, Columbian.

BLACKBERRIES—Agawam, Snyder.

RED CURRANTS—Wilder, Fay's Prolific,

and for great productiveness, though small in size, Red Dutch and Raby Castle.

WHITE CURRANTS—White Grape.

BLACK CURRANTS—Victoria Black, Success, Standard, Lee's Prolific.

GOOSEBERRIES—Downing, Red Jacket. European varieties have not done well here.

STRAWBERRIES—For general market : Clyde, Glen Mary, Williams, Beder Wood, bisexual ; and Warfield, Haverland and Buster, pistillate.

For special or home market—Marshall, William Belt, Nick Ohmer and Brandywine, bisexual ; and Greenville and Bubach, pistillate.

There are few good herbaceous perennials, with the exception of bulbs which bloom in April and the early part of May, and thus it is important to know the few there are. By referring to the Horticulturist for May, 1900, there will be found, in the Central Experimental Farm notes, a list of the best early flowering species of flowers, many of which can now be obtained from Canadian nurserymen. Lists of one hundred of the best ornamental trees and shrubs, and one hundred of the best herbaceous perennials have been published at the Central Experimental Farm, which will be found very useful in making a selection to cover the whole season.

LIST OF BEST VEGETABLES FOR FARMERS.

As all the experiments which are conducted with vegetables cannot be published every year on account of want of space, a list of the varieties of all the principal kinds which have proved the most satisfactory after several years' test was published in the report for 1899 under the heading "List of best Vegetables for Farmers." This gave in a concise form much valuable information as to the best varieties to plant and must prove very helpful to those who studied it. As the annual reports are very liable to be mislaid during the year, and as one is apt

to forget the name of a variety, it has been thought advisable to again publish this list with what changes another year's experience warrants making.

Asparagus.—Conover's Colossal is the best all-round variety.

Beans.—Golden Wax or Wardwell's Kidney Wax, for early crop; Early Refugee, for medium; and Refugee or 1,000 to 1, for late crop, are the most satisfactory dwarf varieties. Southern Crease-back and Asparagus (early) and Golden Andalusia (late) are the best pole varieties.

Beets.—Egyptian Turnip, Eclipse and Bastian's Blood Turnip are three of the best varieties.

Borecole or Kale.—Dwarf Green Curled Scotch is the best.

Broccoli.—White Cape.

Brussels Sprouts.—Improved Dwarf is the most satisfactory.

Cabbage.—Early Jersey Wakefield (early), Succession (medium); Late Flat Dutch, Drumhead Savoy (late), Red Dutch (red), is a select list of the best varieties of cabbage.

Cauliflowers.—Extra Early Dwarf Erfurt and Early Snowball (early); Kronk's Perfection (medium) and Large Late Algiers are among the best.

Carrots.—Chantenay and Guerande or Oxheart are two of the best carrots, but if a good extra early sort is required, the Early Scarlet Horn can be planted with advantage. It is a small variety.

Celery.—Golden Self-Blanching, Paris Golden Yellow, Improved White Plume, White Walnut (early); London Red, Perfection Heartwell, White Triumph (late) are among the best.

Corn.—Early White Cory, Crosby's Early, Henderson's Metropolitan (early); Perry's Hybrid, Stabler's Early, Early Evergreen (medium); Stowell's Evergreen, Country Gentleman (late). In planting, the Country

Gentleman should not be omitted, as it lengthens the season very considerably, and is of fine quality.

Cucumbers.—Peerless White Spine or White Spine, Cool and Crisp, and Giant Pera are three of the most satisfactory slicing varieties. Boston Pickling is a good pickling sort.

Egg Plants.—New York Improved and Long Purple succeed best.

Lettuce.—Black Seeded Simpson, New York (curled), Tennis Ball, Salamander and Golden Queen (cabbage); Trianon and Paris Cos lettuce make a good list.

Melons, Musk.—Long Island Beauty, Hackensack and Montreal Market, of the Nutmeg type, and Surprise, Bayview, Paul Rose and Emerald Gem, of the other types, are all good.

Melons, Water.—Cole's Early, New Imperial, Ice Cream, and Phinney's Early are early water melons of excellent quality.

Onions.—Yellow Globe Danvers and Large Red Wethersfield are two of the best onions in cultivation.

Parsnips.—Hollow Crown and Dobbie's Selected are both good sorts.

Parsley.—Double Curled is as good as any.

Peppers.—Cayenne, Cardinal, Squash and Golden Dawn are four of the best.

Pease.—Gregory's Surprise, Gradus, Nott's Excelsior and Premium Gem (early) McLean's Advancer, Improved Stratagem and Heroine (medium). None of these are tall growing varieties. June (dwarf), Telephone, Veitch's Perfection (tall) (late). Nott's New Perfection is a promising second early sort, and Dwarf Telephone and Starter two promising late varieties.

Potatoes.—Extra Early: Early Ohio and Early Andes (pink), Bovee and Burpee's Extra Early (pink and white). Early: Everett and Rochester Rose (pink), Early Puritan (white). Medium: Carman No. 1

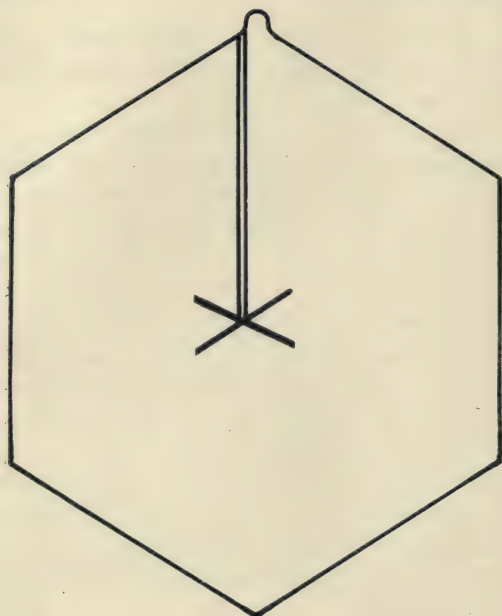


FIG. 2026. DISCS OF TARRED PAPER.

Best, Livingston's Favorite, Matchless, and Baltimore Prize Taker.

There are many varieties of this vegetable which are almost equal in excellence and productiveness. Spark's Earliana is a promising early sort tested this year.

Turnips.—Early : Extra Early Milan and Red Top Strap Leaf. Swedes : Champion Purple Top, Skirving's Improved.

The maggots which attack the roots of cauliflowers and cabbage often make these vegetables very difficult to grow, as there are few practical and satisfactory remedies. As long ago as 1889, tarred-paper cards, or discs were used as a preventative against these insects, and although they have proved very successful when properly handled, they have not come into general use in Canada. They are known as the Goff tarred-paper cards, as they were first described by Prof.

(white), Empire State (white). Late : Late Puritan (white), American Wonder (white), Rural Blush (pink).

Radishes. — Early : Rosy Gem, French Breakfast, Red Rocket (red) and Icicle (white). Late : White Strasburg, Long White Vienna. Winter : Long Black Spanish, Chinese Rose-colored.

Rhubarb. — Linnæus and Victoria are the most satisfactory.

Salsify.—Long White is the best.

Spinach. — Victoria and Thick-leaved are the best.

Squash. — Early : White Bush Scolloped and Summer Crook Neck. Late: Hubbard.

Tomatoes. — Early : Conqueror, Dwarf Champion, Canada Victor and Early Ruby. Main Crop : Brinton's



FIG. 2027. CAULIFLOWER AT CENTRAL EXPERIMENTAL FARM.
Goff tarred paper cards used. No cards used.

Goff, of Madison, Wis. These cards were described by Dr. Jas. Fletcher, Dominion Entomologist and Naturalist, in his annual report for 1898, and were found by him to give good satisfaction. The cards are made of a thinner grade than the ordinary tarred paper, so that they will be more flexible, are three inches in diameter, and are six-sided. There is a slit from the circumference to the centre, where there is a star-shaped cut. As soon as the plants are set out the discs should be put on. The slit to the centre permits of slipping the card on the stem of the plant, the star-like cut in the centre making it fit very closely. After this is done it is pressed flat upon the ground, the surface of the latter having been previously levelled, so that the fly can not crawl under

to lay her eggs. As the insect will, as a rule, not lay her eggs on the card, the plant is practically safe if the disc is put on at the proper time and in the right manner. If the card does not fit tightly about the stem of the plant there will be room for eggs to be deposited. It is very important to put on the discs when setting the plant, as the eggs are usually laid immediately after the plants are set. The photo showing a cauliflower plantation at the Central Experimental Farm, on part of which the discs were used, showing clearly the great advantage of using them.

W. T. MACOUN,
Horticulturist,
Central Experimental Farm,
Ottawa.

BRIEF SKETCH OF LIFE OF JAROSLAV NIEMETZ.

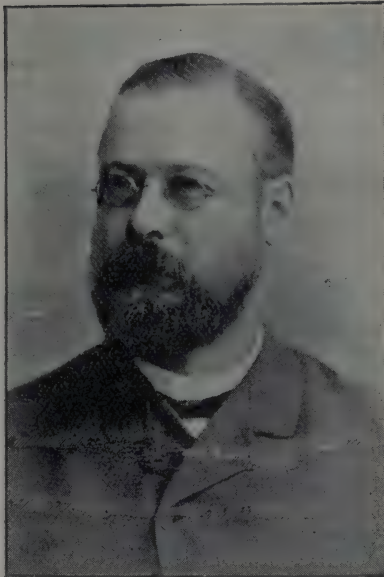


FIG. 2028. JAROSLAV NIEMETZ.

Department of Agriculture to report on horticulture in Canada. We visited the orchards in the Grimsby section with him, and then we went to Toronto to visit the Industrial, a place of great interest to Mr. Niemetz, for it gave him an opportunity of comparing the fruits of Ontario with those of his own country.

Mr. Niemetz was for many years a regular paid subscriber to this journal and frequently contributed to its pages. The following outline sketch was written by his nephew, Mr. Vaclaw Niemetz, of Odessa :

"Russian fruit growers have lost in Mr. J. Niemetz one whose public addresses were always received with close attention. He was the second son of the eminent Bohemian author, B. Niemetz, and he inherited from his mother the highest qualities of heart and mind. Left early an orphan, he was unable to finish his course of study, and supported himself by topographical drawing at Prague, where his remarkable abilities in this line were observed by some admirers of

IN THE year 1895 we had a visit from an eminent Russian horticulturist, Mr. Jaroslav Niemetz, of Winnitza Podolie, Russia, who was sent by the Russian

his mother. Those friends collected the necessary means and the young man went to Munich to take a course in the Academy of Fine Arts. After this he was invited to teach drawing in a rich Russian family. At the close of his sixtieth year we find him again in Odessa, earning his living by teaching, and soon after he was admitted as teacher of drawing in Real College. His moral qualities and his successful methods of teaching led to his appointment as inspector in the same college.

"About this time he purchased at Winnitza a small garden and shortly developed a passion for fruit growing, and he became such a specialist on small fruits and wine that all his friends were surprised at the vast extent of his knowledge.

"From Odessa he was removed to Rovno, in Wolinia, and finally, to his great satisfaction, to Winnitza, in Podollie. Here he was able to devote all his leisure to his beloved occupation. He procured plants, cions and seeds from many countries, such as Bohemia, France, Germany, England, Canada and the United States, and in such quantity that his garden had the appearance of an experiment station. He conducted quite extended correspondence with many eminent fruit growers of both the Eastern and Western Hemispheres, sending them

in exchange, grafts, plants and seeds, and taking considerable care to acquaint foreigners with the excellence of Russian varieties. Frequently he suffered serious personal loss and met with disappointing failures through carelessness of Customs officials, loss of precious grafts, by reason of their long journey, so that recently he had sold some trees and cions in his collection to cover some of the enormous expenses incurred in securing them.

"His work was brought to the notice of the public by the Russian Minister of Agriculture, who proposed that he be sent to America to learn the methods of fruit growing adopted there; so in 1895 he made the tour of the United States and Canada, especially the fruit-growing sections.

"After returning home he suffered very much with his eyes and was ill with inflammation of the lungs, which causes delayed the publication of his report, which did not appear until the summer of 1898 and was most highly valued by fruit growers.

"Wishing to consult a specialist about his eyes, he set out for Berlin, but at Prague he was again taken ill and died two weeks later. He was buried by the side of his mother at Prague, but his name will ever continue to live among fruit growers."

"THE CUT-LEAVED BIRCH is one of the very best trees for small lawns," writes Eben E. Rexford, in the April Ladies' Home Journal. "It is entirely hardy. It is easily transplanted and it requires as little attention as any tree I know of. And it is very attractive, with its finely cut foliage, which is always bright and healthy, no matter what the season may be. The Mountain Ash is another good tree for a small place. It's a strong, rapid grower, of utmost hardiness, fully equal to taking care of itself after it gets a start. It has very pleasing foliage, and great drooping clusters of scarlet fruit. The Japanese

Maples are lovely trees, in all stages of growth. Most varieties have delicately cut foliage, a broad, spreading habit, and the merit of rapid growth combined with great hardiness. Some varieties have slender, drooping branches, and make extremely attractive specimens for use on an open lawn where their beauty may be fully displayed.

The Negundo or Ash-leaved Maple (Box Elder) is of extremely rapid growth, and on this account many persons who are impatient of results select it for lawn use. It is a clean tree, has attractive foliage, is as hardy as an oak, and become quite a good-sized and a hardy specimen in five or six years."

THE ASPARAGUS RUST (PUCCINIA ASPARAGI, D. C.)

With stealthy pace,
With Tarquin's strides, towards his design
Moves like a ghost. —SHAKESPEARE.

ABOUT four years ago a stranger appeared on the Atlantic coast of this continent manifesting an unusually marked partiality for asparagus. Clad with invisibility he entered gardens, without arousing resistance, and proceeded quite leisurely to make himself at home while he feasted at the expense of the owner's asparagus beds. The precise date of his arrival, by what steamer he came, the port at which he landed are all unknown. Unheralded, unseen, he went from garden to garden, leaving all untouched save his favorite asparagus. At length his voracity made such havoc with the asparagus beds of some of the cultivators of this valuable esculent in New Jersey that they became alarmed lest their crop should be utterly ruined. Specimens were sent to the State Experimental Station showing the work of the devouring marauder. This was in August, 1896. The station sent out circulars, setting forth the cause of the injury, to the several Experimental Stations and to the agricultural press of the country, and found that the asparagus destroyer had just been discovered to be at his work in New England, Long Island, and the State of Delaware. In 1898 he was as far west as Michigan, and in 1899 had arrived in North Dakota. It is therefore possible, even probable, that the marauder has entered Ontario and is now "with stealthy pace moving towards his design," the ruin of our asparagus.

This destroyer is a parasitic fungus, named by botanists *Puccinia Asparagi*, one of the Rusts, a near relative of the Wheat Rust, the *Puccinia Graminis*, which in one form of its life cycle infests the berberry ;

but unlike it the *Asparagus Rust* completes its life cycle solely on the asparagus. That our readers may the more readily detect the presence of this rust should it appear we give a short account of its life history.

In the autumn dark lines will be found upon the stalks quite visible to the naked eye as shewn by Fig. 2029. These lines are composed of spores of this fungus, which are analogous to the seeds of flowering plants. These are the winter or final spores, formed



FIG. 2029.



FIG. 2030.

at the end of the season, in which form the plant, the fungus, passes the winter. Botanists have named them Teleuto-

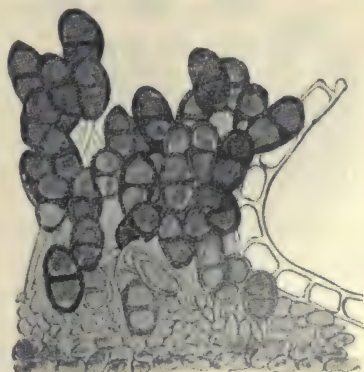


FIG. 2031.

spores (Greek, teleute, the conclusion.) A part of one of these dark lines magnified twenty-five times is shewn by Fig. 2030. The black portion is composed entirely of teleutospores, which appear only as a black mass, but, when magnified 175 times, their form becomes more distinct as shewn in Fig. 2031. Two teleutospores, separated from the mass and magnified 300 times, are represented by Fig. 2032.



FIG. 2032.

When the "winter is past, the snow melted and gone, flowers appear on the earth, and the time of the singing of birds is come," then the teleutospores put forth slender filaments upon which are formed small bodies called *sporidia*; into these the contents, the protoplasm, of the teleutospores is transferred. The sporidia are very easily detached, and, borne on the wings of the wind, are carried far from the place of their birth. Such of them as happen in the course of their aerial journey to be dropped upon growing asparagus plants, when the requisite temperature and moisture are present, throw out thread-like growths called *hyphae* which enter into the stalk and there grow, ramifying into a network to which has been

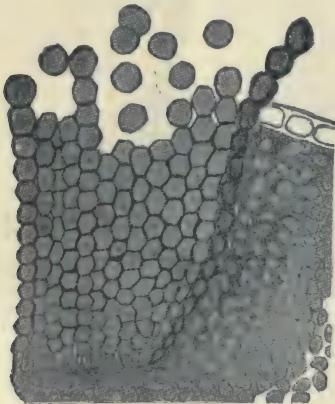


FIG. 2033.

given the distinctive appellation *mycelium*. This is the vegetative portion of the fungus, here in the tissues of the asparagus it feeds on the food which the asparagus has elaborated for its own use. When the parasites have attained a certain state of maturity the organs of reproduction appear upon the surface of their host plant, often the first intimation to the cultivator of their presence.

In the case of this Asparagus Rust we are informed that in America it usually omits the second stage, known as the aecidial stage; yet it sometimes is seen upon asparagus growing in uncultivated places, and in beds not cut. It is also known as the cluster-cup form—Fig. 2033 is a representation of part of a section of the cluster-cup form of this rust magnified 175 times showing the rows of decidial spores; Fig. 2034 shows the spores after they have been taken from the cup magnified 300 times.



FIG. 2034.

When the cluster-cup stage is present the spores shown in Figs. 2033 and 2034 are distributed by the wind, and, becoming deposited on asparagus, penetrate the epidermis, rob the plant in the same manner as the sporidia formed from the teleutospores, and, throwing up the reproductive organs, present to the observer the uredospores, the rust, (*ureda*, Latin, the blasting of plants). When the aecidial stage is omitted then the fruit, borne by the reproductive organs of the teleutospore sporidia, is the Rust, the uredospores. These as shown by Fig. 2035 as they appear to the naked eye, are seemingly mere lines on the surface of the stalk. A part of one of these lines is represented in Fig. 2036 as it appears when magnified 25 times, and in Fig. 2037 when magnified 175 times. A few of the uredospores magnified



FIG. 2035.

300 times are shown by Fig. 2038.

In the Wheat Rust the uredospores are multiplied rapidly, by reproduction of the same form many times, until near the time of ripening of the grain; then the



FIG. 2036.

fungus plants, apparently aware of the necessity of providing a thicker walled spore for the winter, cease to grow uredospores and instead produce a crop of teleutospores. In the Asparagus Rust the uredospores are not multiplied by reproduction; that is, they do not become plants producing more rust, more uredospores, but, shortly after the yellow rust appears on the stalks, the black teleutospores are to be found in the same pustules, thus completing the cycle.

What this parasite accomplishes in the way of mischief is done by the power of

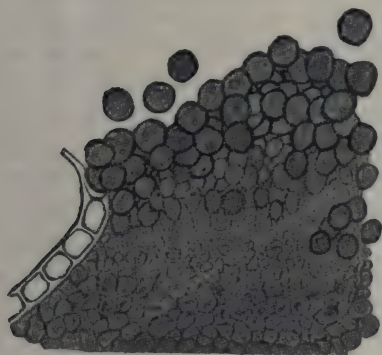


FIG. 2037.

numbers. Shall we count the spores to be found on a piece of asparagus stalk not more than three inches long as presented in Fig. 2035 and interpreted by Fig. 2037, and tell how many they be? Such is the host with which we have to contend now on the war path: infinitesimal in size, infinite in number, "horsed upon the sightless couriers of the air" it comes as destructive, if not as "terrible as an army with banners," and we are powerless to stay its coming. Spraying with fungicides is in this instance of doubtful utility, for such is the foliage and smoothness of the epidermis of asparagus that it is well nigh impossible for the fungicide to effect a lodgement. Nevertheless we should be able to stamp out the enemy by united action of asparagus growers in cutting off at the ground every affected stalk, as soon as, by its change of color it is shown to be no longer of service to the plant, and burning them forthwith; for, if the teleutospores are destroyed before they are dislodged from the stocks where they are formed, then there can be no sporidia in the spring to breed Rust. The importance of *united action* should be apparent to all, and the importance of burning the teleutospores *while yet in the stalk* will be seen when it is understood that the teleutospores produce sporidia without reference to any particular place, but do so wherever they chance to be if only there be the requisite atmospheric conditions.

The writer desires to acknowledge his indebtedness to Professor Byron D. Halsted, of the New Jersey Experiment Station, whose valuable paper on the Rusts of Horticultural Plants has been largely drawn upon, as published in the Transactions of the Massachusetts Horticultural Society for 1900, and the accompanying figures copied to illustrate this paper.

D. W. BEADLE.

207 Givens Street, Toronto.



FIG. 2038.

THE DISTRIBUTION OF AGARICS.

SOME REMARKS ON THEIR EDIBILITY.

DR. Hare's paper on edible Agarics (Feb., 1901) is interesting as showing the irregularity of the distribution of species of this class of plant, than which no other is more cosmopolitan. Besides the "fairy-ring," (*M. Oreades* Bolt), there are seven other species of *Marasmius* not rare in this part of the province, but I have never seen a living specimen of the acrid one (*M. urens* Bull.) against which Dr. Hare cautions the collector of "fairy-rings." Prof. Peck does not report it in New York State; Mr. Morgan finds it in Ohio.

The other species which collectors of "fairy-rings" are cautioned against, *Naucoria Semi-orbicularis*, Bull., and which Dr. Hare says he has not found around Whitby, is common here. It may be seen in almost every old pasture in warm damp weather in June and is quite likely to be found near to or among "fairy-rings." Its gills are rust-colored, its cap is quite thin and its taste is suggestive of stale beech nuts.

Dr. Hare's paper is interesting also as being the first Canadian record of St. George's mushroom (*Tricholoma Gambosum* Fr.) The tricholomas are numerous in our latitude; Prof. Peck reports over fifty species in New York State, three of them being recommended as edible—indeed none of them are known to be poisonous—but his lists do not include *T. Gambosum*. It ought to be easily recognized from Dr. Hare's description. Dr. M. C. Cooke says of it that its odor is so strong that workmen employed in cleaning it out of English lawns have been obliged to desist, "overpowered by the heavy disagreeable odor." It would be interesting to discover how the species reached the Whitby College grounds. Possibly the mycelium may have

come among the roots of shrubs or plants from Europe.

In speaking of the properties of fleshy fungi, a distinction, if possible, should be made between those that are merely disagreeable or indigestible and those containing some poisonous alkaloid which enters the circulation. The same species seems to vary in the strength of its deleterious and other qualities according to soil and situation and probably age. I have received from Galt and Woodstock samples of *Lepiota naucinoides* Pk. taken from collections of that species alleged to have caused very serious nausea and vomiting. Most eaters of that species, so far as I know, have always enjoyed it. Again, certain fleshy fungi that are innocuous to most persons act, by a sort of auto-intoxication, as a poison in other stomachs. As an example of this, a woman at Aylmer was fatally poisoned a few years ago from eating *Gyromitra esculenta* Fr. while at the same time several other persons who had eaten more freely suffered no ill effects. As its name implies this species is regarded as esculent the world over and it is one that cannot be mistaken for any other. These and other instances that might be added teach the lesson that it is wise to partake sparingly at first of any new kind of mushroom or toadstool. It is better to leave them all severely alone than to eat an *amanita verna* for example by mistake.

In his future papers it is to be hoped that Dr. Hare will add after the account of each species such culinary notes as the one with which he closes the paragraph on the meadow mushroom. "Fairy-rings" may be cooked so as to be very delicious or they

may be brought on the table resembling so many bits of baked fowl's skin. *Armillaria mellea* Vahl., a very abundant species in Western Ontario, is recommended by some

mycophagists. I should like to see a receipt for cooking it that would produce a palatable dish.

JOHN DEARNESS.

London, 16th Feb. 1901.

CITY STREET SHADE TREES.

CITY improvement is the watch-word of the city to-day. Next to good, clean streets, nothing improves the appearance of a city and makes it more attractive than fine shade trees. Even a stately mansion looks naked without them. London is very well supplied with shade trees, but they are not all that they might have been; and there has been a liberal expenditure of denunciation as to their treatment, with a bewildering diversity of opinion as to what that should be. Much of that has arisen from a failure to distinguish between things that differ. There are a diversity of trees, and there are a diversity of purposes for which trees are planted, therefore there should be a diversity of treatment; but my subject is city shade trees exclusively.

Shade trees are not for ornament only; utility is combined. During our hot summer months shade becomes a necessity for the comfort and well being of the citizens, hence it ought to be regarded as a public duty by every one owning land facing on streets to plant trees as soon as the conditions will permit. And when once planted they should never be cut down if it can be avoided. As it takes trees a long time to attain to their best, they should be guarded with the greatest of care. An abundance of foliage in a city is well known to be conducive to the health of the residents of that city but the free circulation of pure air is a necessity for the attainment of vigorous health. All know how agreeable shade is on a hot day when travelling the street, and every one instinctively makes for it when the op-

portunity presents itself, and it matters little to the pedestrian what kind of shade it is so long as it is dense. Yet to the residents in that locality it may of the greatest consequence, as health is more important than shade, and the one is often secured at the expense of the other. If we take a glance at the treatment usually given to city street shade trees we will get a forcible illustration of how it is done.

When a treeless lot is bought and a house erected thereon, trees are planted to relieve the present nakedness and secure future shade and ornament. Our wide boulevards require two rows, and more are often planted between these and the house, as suits the fancy of the owner. The saplings grow and send out branches seven or eight feet from the ground. These are allowed to remain, and receiving the first flow of sap, grow most rapidly, which checks the growth of those above and causes the trees to grow in width more than height, which in young trees is thought to be an advantage, as it forms a fine round head, giving more shade and that sooner. But trees if they live, will grow and keep growing, and in time their lower branches become thicker than the trunk of the tree above them, the foliage becomes more dense and closer to the ground. No air circulates beneath them. Sun and air always excluded, the soil becomes cold and sour, so that grass cannot grow, and is given over to moss, moulds and fungus. The house is affected by its surroundings, and the health of its inmates suffer. Attention is directed to the cause, when it is dis-

covered that the trees have become a nuisance and must be dealt with accordingly. So the large lower branches have to be cut off, and the trunks thereby disfigured for all their future life and their death hastened. The tops have been dwarfed and deformed, and good shade, combined with the free circulation secured, has been postponed for years whilst they and beauty of form have parted company forever. That is but a picture drawn from what is taking place around us.

The future of trees, their suitability for and their effect on the situation should be taken into consideration at the time of their planting, and kept in mind for their treatment after. To obtain the best effect, the trees on each street should be all of one kind, so as to secure regularity in form and manner of growth. Planted at regular distances apart, and no branches allowed to remain permanently on the trees until a stem of eighteen feet from the ground has been secured. This requires yearly attention, yet will give but little labor, as the branches removed are small and will leave no scar to mar the trunk. The effect of such treatment is to cause the trees to grow rapidly tall, and when once a stem of proper height has been attained a spreading top will soon follow. When the branches meet and begin to crowd, the growth will be forced to the open sides. Then there would be luxuriant shade for the pedestrian, whilst the roadway also will receive the benefit.

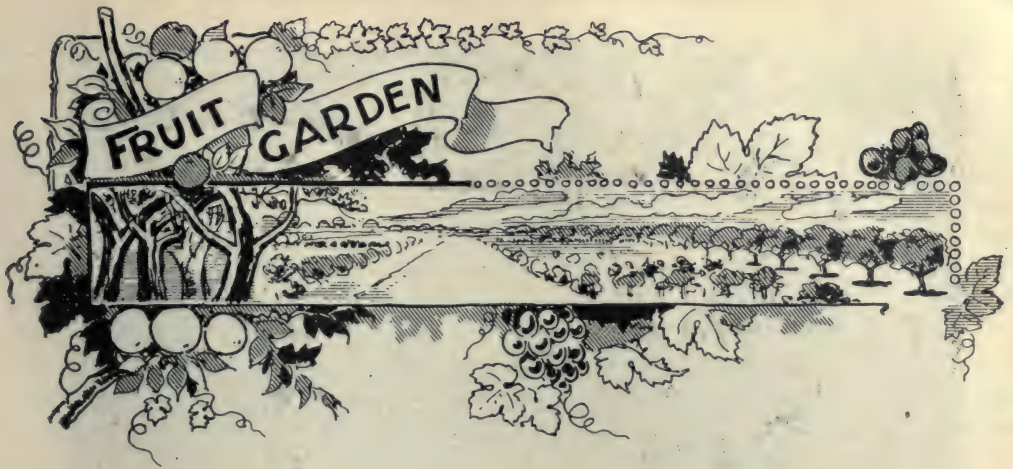
Now let us consider what the reward would be of such a course of care and forethought. Rows of trees with smooth and

stately trunks, themselves a pleasure to look at, bearing aloft their leaf-laden branches, which secures the much-desired protection from the fierce rays of the summer's sun; and also secures the delightful and health-giving sensation of unobstructed currents of fresh air circulating beneath. Vaulted corridors roofed with verdure, and a vista of charming perspective as far as the eye can reach, an inducement for the lively choristers of the forest to take up their abode and give animation to the scene—a consummation all should help to secure and preserve. The busy workers in the city cannot readily obtain the opportunity to enjoy the delights of the country, but in this way these might be in a measure produced in the city for the benefit and enjoyment of all.

But there are more than merely physical gratifications to be obtained from such surroundings. There are mental and moral improvements made possible to every one within their influence. Nothing could more powerfully contribute to the cultivation of the artistic sentiment, stimulate the love of the beautiful in nature, expand the mind, elevate the thoughts and refine the feelings of all that is susceptible. If such a course as indicated had been adopted 25 or 30 years ago, and consistently adhered to, London, which is noted for its abundance of excellent shade trees, would have good cause to be much more gratified with them than it can be, and call forth from visitors an acknowledgment that it was indeed a city pre-eminent for its magnificent avenues—*London Free Press*.

GET THE BEST SHRUBS FOR THE LAWN—In selecting shrubs for the lawn, quality should be considered first of all. There cannot be many used on small grounds, therefore those selected should be the best. Let me say right here that it is a serious mistake to scatter shrubs over the surface of a lawn. To do so detracts from its dignity. A lawn

as a lawn, should be given a chance to assert itself, and stand on its own merits. If it is broken up by shrubbery it loses its individuality, and is no longer a lawn in the best sense of the word. Shrubs should therefore be kept to the rear of it, or to each side, and the lawn be left perfectly clear.—*April Ladies' Home Journal*.



NOTES ON STRAWBERRIES UNDER TEST AT THE ONTARIO AGRICULTURAL COLLEGE.

TWO hundred and sixty varieties of strawberries have been under test here during the past five years. Careful notes have been taken upon the habit of the plants and the character of the fruit of each variety, and every picking has been carefully weighed and recorded. This has required a great deal of attention and careful work, but it has put us in the position of knowing definitely just what each variety has done, and we can speak with some assurance upon the relative values of varieties which have been subjected to a test of this kind for five years in succession.

In arriving at a conclusion as to which are really the best varieties of strawberries there are quite a number of points besides productiveness to be taken into consideration. With reference to the plant we must take into account its vigor and freedom from disease, its ability to reproduce itself by good strong runners, its ability to fertilize its own blossoms or those of other varieties, and also its season of bloom and fruiting. With reference to the qualities of the fruit, note must be taken of the size, shape, smoothness, and color of the berries, and also of the color, firmness and flavor of

the flesh. Flavor is one of the least variable qualities in the strawberry, and is usually least considered. The qualities most sought in a market variety are large size, smooth round shape, and firmness of flesh. The color may vary from a bright red to a dark crimson, but a dark rich color, enlivened by bright yellow seeds and a varnished appearance makes a variety not only attractive in the market but the most desirable for canning.

Notwithstanding all the many varieties that have been tried we are still looking for the ideal strawberry. There are among those tried many excellent varieties, but even the best are wanting in one or more desirable qualities. In the brief summary here necessary we can only name a few of the leading varieties, mentioning their most prominent good qualities and defects.

In making a selection of varieties, either for home use or market, we do not think it is well for a grower to restrict himself to less than half a dozen kinds. He is then more certain of having both quantity and quality, no matter what the soil or season. Such a collection should include not only a few of the best midseason varieties, which



FIG. 2039. STRAWBERRY EXPERIMENTAL PLOT, O. A. C., GUELPH.

are usually the most productive, but a few of the best early and late kinds, that the fruiting season may be extended as much as possible.

Among the early varieties some of the most desirable kinds are Sadie, Anna Kennedy, and Van Deman.

Van Deman is in many respects an ideal berry. It is very early, of uniformly good size, smooth round shape, firm flesh, and a very handsome dark crimson color, with bright yellow seeds and a varnished appearance. The plant, however, lacks vigor and requires a moist soil and favorable season to do its best. For three years in succession this proved to be our most productive very early variety, but during the last two seasons it has been surpassed by Sadie and Anna Kennedy. It is a perfect flowered

variety and an excellent pollinizer for other early pistillates.

Sadie is a newer variety that has made an excellent record for the three seasons it has been under test. It excels in vigor and productiveness, just those qualities in which Van Deman is lacking. It is also very early and a good pollinizer, but the berries are rather small, although shapely, firm, and of a good color.

Anna Kennedy is also a new variety producing firm fleshed, good sized, very handsome berries of a dark crimson color. All it requires is the productiveness of Sadie to make it an ideal variety. It is a pistillate variety requiring an early blooming bisexual variety, such as Sadie or Van Deman near at hand to furnish the necessary pollen.

When both quantity and quality of fruit

are considered we would mention Clyde, Irene, Warfield, Tennessee Prolific, and Jucunda Improved among the best mid-season varieties.

Clyde comes nearest to the ideal variety in everything but the color of the fruit, which is hardly dark enough. For the three years Clyde has been fruited here it easily ranks first for productiveness. The plant is vigorous and healthy, the fruit large, shapely and moderately firm.

Irene has now fruited with us for three years, and it has proven to be well worthy of a place in any collection. The plant is vigorous and healthy and makes plenty of runners. The blossoms are pistillate. The fruit is of fairly good size, shapely, and of a dark crimson color and handsome appearance. Last year this variety ranked first for total yield, but on an average of the three years' crop it does not equal Clyde.

Warfield is an old standard that has had its ups and downs. In showery seasons it makes a grand yield, but in times of drought its leaves curl up and the plants wither in the sun. It is an excessive plant maker, and throws out too many runners. The flowers are pistillate, the fruit is of medium

size, shapely, firm, and of the dark rich color so much desired for canning.

Tennessee Prolific is a vigorous grower and makes plenty of plants. The flowers are perfect and the fruit is large, shapely, firm, and of a bright color. This is a reliable variety that has on the whole made a good record, ranking near the head of the list among those varieties that have been fruited for five years in succession.


Jucunda Improved.—If yields only were considered this variety would hardly appear in so short a list, although on the average of five years' crop it has made a very fair showing. In everything but yield, however, it ranks among the best. The plants are healthy and make just runners enough to fill the rows nicely. The flowers are perfect, and the fruit is large, shapely, firm, of a dark crimson color and very attractive.

Among the late varieties Saunders is still entitled to first place. In both plant and fruit it possesses as many of the good qualities, and as few of the defects, as any other variety on the list. The plants are healthy and vigorous and the flowers perfect. The berries are large, well shaped, firm, and of good color.

O. A. C., Guelph.

H. L. HUTT.

SOME OF THE NEWER FRUITS.

BOUT two years since I reported on some new fruits. Two more years of experience have not much changed my opinions.

I see no reason why Dwarf Juneberries should not be found in every garden. They are entirely hardy, and flourish with less cultivation than any fruit that I know of. A mass of white bloom in May a sure crop of sweet fruit at the end of June. The fruit resembles huckleberries, and is just suited to mix with sour red currants in canning or cooking otherwise. Most persons would prefer a few currants with the Juneberries as the latter have no acidity. They are in

size about the same as black currants. Many like them raw; some object to them.

Japan wineberries froze down in the hard winter of 1899, but they promptly recovered and gave a moderate crop of fruit in 1900. They have a peculiar flavor, more acid than red raspberries. The fruit is smaller than red raspberries, and very bright and beautiful. We have planted a row of them for home use. We like them.

Japan plums have a future in front of them.

Ogan, a round white plum, ripens in July and drops promptly to the ground. Answers to cook, but is not very good.

Abundance is not a success with us. Fruit

overbears, and much of it is small and fails to properly mature.

Burbank usually bears immense crops of good sized fruit which it perfects. The tree at the same time makes rampant growths. It is a mid-season variety. The drooping, sprawling growth of the tree is very inconvenient. The quality of the fruit is equal to that of the average European plum.

Wickson is a larger late variety, which may be an acquisition. The fruit often drops before ripening, but some of it is held till quite late.

I have another variety that ripens and holds its beautiful delicious fruit quite late. Fruit varies much in size, and is covered

with bright carmine dots and a white bloom. Quality very good, but there is a flavor in the skin of Japan plums that is rather objectionable. Curculios also fail to flourish in these plums.

Satsuma is a mid-season Japan plum which, externally and internally, resembles a blood beet; fruit is sour, but may in time be in demand for cooking purposes. Japan plums seem to be about as hardy as the European varieties.

The winter of '98-'99 killed some of both varieties where the ground was kept clean. A cover crop or some kind of mulch would in this climate save both kinds.

E. MORDEN.

Niagara Falls, South, March, 1901.

SEASONABLE ORCHARD WORK.

I THINK it the duty of every fruit grower to attend to the needs of his orchard at once; for if neglected now, ten chances to one if the work will be done so effectually after spring work begins. In our own orchard I have no evil results from pruning trees the latter part of March, but if I had only a few trees I would prefer to prune a month later. Then there is the manuring and top-dressing of the orchard that can be accomplished better now than at any future time. There is also a better opportunity of securing the nests of the caterpillars, which are on the twigs or small branches, for they are readily seen before the buds swell; also the cutting out of dead or decayed branches, scraping old and rough bark, thereby destroying hundreds of moths that have made the rough bark their winter quarters.

The fruit grower who is up to the times must attend to these matters promptly if he intends to have a paying crop of fruit. He will also see to it that his spraying apparatus is in perfect working order, and if not in possession of a good spray pump

he will secure one without waiting till half of his crop is injured with insects, and then conclude that spraying is no use. My experiences tell me that two sprayings before the blossoms open is better than four after, except for fungi alone, and even then it is most beneficial.

Owing to the low price of fruit last fall, some growers will be discouraged, and thereby neglect to care for their trees; but let such remember that for strictly first-class apples there was no time, after the fruit was gathered, when a good paying price could not be obtained, and I am sure no reasonable grower would complain at the prices at the present time. I am shipping some apples this week at \$3.00 per bbl., and a full car load left our station last week for Winnipeg at \$2.80 per barrel.

My advice to fruit growers is, keep up the fertility of your orchards; keep them well pruned; keep them well sprayed and free from insects, and your orchards will well reward your efforts.

Whitby.

R. L. HUGGARD.

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE—III.

THE ORIGINAL HOME OF THE SAN JOSE SCALE.

MANY attempts have been made in recent years to fix the original home of the San José Scale. California, China and Japan, each in turn, have been honored in this connection, but no evidence of a definite trustworthy nature has been produced to determine for a certainty the nativity of the Scale.

The real object of all such investigations was to ascertain what are the natural enemies which kept the Scale in check in its native home, for it must be evident that some influence must be at work there, holding in check this most prolific insect, which has spread so rapidly in America when free from its usual enemies. Many are of the opinion that if these enemies could be discovered it might be possible to import them, and propagate them among the scale infested orchards of this country.

While it is true that very few successful experiments in the importation of the enemies of injurious insects have been carried out, yet there is no reason why we should become discouraged in the case of the San José Scale. Much has been learned by the failures regarding the conditions which are necessary for the successful importation of predaceous insects. In the first place, the climate of the native country of the predaceous or parasitic forms should not differ very much from that of the country to which they are taken; and in the second place, the parasitic forms should find insects in their new country with which they are already acquainted. To induce foreign parasites, etc., to prey upon insects altogether unfamiliar to them would require an adjustment of conditions which is usually only possible in nature after a long period of time. The success of the *Vedalia* introduction into Cal-

ifornia in checking the *Icerya* or *Cottony Cushion Scale* resulted from the fact that the *Vedalia* found the identical species of scale with which it was quite familiar in Australia.

Last summer, Mr. Krwana, a Japanese student of Entomology in Stanford University, California, returned to Japan for the purpose of collecting and studying the scale insects of his native land. He found the San José Scale widely distributed in most of the islands, in the interior as well as along the coast. He observed, moreover, that it was doing comparatively little injury in the orchards, where it was found on plum, pear, apple, Japanese quince, currant and willow.

Several enemies of the scale were quite common, among which were three species of lady-beetles, a chalcid fly, and the larva of a moth; and it is the opinion of Mr. Krwana that these are the agents which keep the scale in check. Curiously enough the scale was not found on any wild, uncultivated tree or shrub, an observation which may be explained by the fact that orchard cultivation has been in existence in Japan for many centuries; and that the pest has taken more kindly to the cultivated trees and shrubs than to the uncultivated wild forms. Subsequent examinations, however, may discover the scale on the wild trees.

It is to be hoped that experiments in the importation of these enemies of the scale may be tried, and that another brilliant success may be chronicled in the annals of economic entomology.

SPRAYING.

Experience has shown very conclusively that the great secret of success in spraying is spraying early, spraying several times during the season, spraying every year, and spraying intelligently. When we know that

some insects pass the winter in the adult stage, and are ready at the earliest opportunity to begin egg-laying, or that others winter over as half-grown caterpillars, ready to begin eating the tender parts of the young buds with the first glimpse of spring weather, we can readily understand the importance of early spraying with paris green. But early spraying is of even greater importance in preventing the growth of fungi which reproduce by *spores*. Frequently winter spores are formed in the fall, and live over in the fields, and in the crevices of the bark or in other places on the trees. When the fruit and leaves form in the spring and summer, the spores are often blown on them, and soon give rise to diseased conditions. Early spraying with copper sulphate (3 lbs. to 40 gallons of water) while the trees are dormant and with Bordeaux mixture when the leaves are unfolding, will kill many of the wintering spores. It is necessary to spray several times during the season, for insect pests are continually appearing and no month of the summer is free from their attacks. Moreover, some leaves develop much later than others on the same tree, and escape the first spraying with copper sulphate or Bordeaux mixture. These leaves should be sprayed to prevent spores developing on them. The fruit would also escape the first spraying, hence the necessity for spraying them to prevent the attacks of fungi.

Many owners of orchards are probably asking themselves the question, "I sprayed my orchard well last year, shall I spray it

again this year?" There should be no hesitation whatever in this matter. Spray every year, for it is impossible to get rid of fungi entirely, and the season may be very favorable for their spread and development.

Many people spray who do not know the reason why they are spraying. They think that fungous diseases may be cured by the application of Bordeaux or some other fungicide at any stage of the disease, whereas the real purpose of spraying is to prevent the germination of the fungous spores that have been blown upon the leaves, branches and fruit. Masseur says: "The old maxim, 'prevention is better than cure' embodies the keynote to success in combating plant diseases." When once the spore has germinated and the thread of the fungus has obtained an entrance into the interior of the leaf, it is impossible to cure the disease, but it is possible to prevent the disease from spreading to other plants, by killing the spores produced by the fungus.

It will be seen how important it is to spray intelligently. The operator must study the weather conditions, and watch carefully the effect of rains on the previous spraying. He must note the time to spray with ammonia-copper carbonate instead of Bordeaux so as not to spot the fruit. He must suit the solution to the plant so as not to injure tender forms; and he must study the various kinds of spray pumps on the market, secure the best, make the solution properly, and spray thoroughly.

W. LOCHHEAD.

WATER-LILIES ARE EASILY GROWN.—All that is needed to grow water-lilies is a tub, sunlight from six to eight hours a day, some rich garden soil, and a little water. The easiest way to grow them is from seed, and the prettiest varieties are the African, or Zanzibar; they are purple, blue and red. To sow them take a common bowl and half fill with finely sifted soil packed down level and

hard. On the surface scatter the seed evenly and cover with not over a quarter of an inch of fine sand; then very gently fill the bowl with water so as not to disturb nor wash away the sand. Place where the water will be kept at a temperature of about eighty degrees. In two weeks they will be ready for transplanting. — *April Ladies' Home Journal*.



TIMELY TOPICS FOR THE AMATEUR.—XIV.

GARDEN ANNUALS AND BIENNIALS—
The many beautiful species and varieties of these two classes of plants are more particularly suited perhaps for the amateur flower-lover than for the commercial or professional florist. With the exception of a few that may be termed staple or standard kinds, such as sweet peas, asters, mignonette, zinnias, phlox drummondii, nasturtium, antirrhinum, and perhaps a few stocks and cosmos, very few of the remaining varieties are of sufficient merit or attractiveness to warrant their being grown to furnish a supply of cut flowers. The latter feature is however, as a rule, a secondary consideration with amateurs, as the bright and pleasing appearance of the flower garden or lawn is usually their first consideration.

The list of annuals, etc., mentioned in the February number of this journal was selected mainly with a view of furnishing varieties of easy culture, and that would also give a successive supply of cut flowers, as well as to assist in brightening up the flower garden in summer. One omission in the list cannot however be overlooked, viz., that of the sweet pea. The value of the sweet pea, especially for cut-flower purposes, can hard-

ly be over-estimated, as so many beautiful varieties and types of these sweet-scented favorites can be so easily obtained, and the fact that cutting the flowers regularly and not allowing any of them to seed, not only adds to their effectiveness as decorative plants, but also prolongs considerably their period of flowering.

One objectionable feature with annuals is, that unless early sowings are made either in the greenhouse, hotbed, or perhaps in a window, the flower border is almost bare and devoid of foliage and flower during the spring and the greater part of the summer. This plan of raising garden annuals under glass is a comparatively difficult and delicate operation with most of the varieties. There are few, if any professional gardeners or florists, but will frankly acknowledge that a collection of early garden annuals are more difficult to succeed with, if started under glass, than a collection of orchids or exotic plants. Unless the seedling plants are attended to very carefully, more especially as regards watering and transplanting them, partial or total failure is sure to be the result. The most critical period perhaps is when the young plants are transferred from the almost tropical climate of a greenhouse



FIG. 2043. BERMUDA EASTER LILIES.

or hotbed, to the uncertain and variable temperature usually experienced out of doors in spring and early summer. Careful watering and shading the young plants from the hot sun for a few hours at mid-day, is generally necessary for a day or two after bringing them from the greenhouse or hotbed. A little protection on cold nights is also advisable for a time, until the plants have become accustomed to the changed condition of their surroundings. This hardening-off process as it is termed, is not however as a rule quite as difficult with plants raised in pots in a window, as it is with those raised in a greenhouse or hotbed.

The most natural, and probably the most certain methods to grow annuals is either to sow the seed in the open border, or to sow them in a cold-frame or seed bed specially prepared for them out-of-doors. The latter method is probably the best, as the young seedlings can be better attended to in the first stages of their growth in a small frame, than if sown in the open ground. A few varieties such as stocks, mignonette and nasturtiums should be sown in pots, a few seeds in each pot, and grown on in these until ready for transplanting into the border, as these varieties do not transplant as successfully as many others if the roots are disturbed in transplanting them. Castor oil beans (*Ricinus*) should be planted singly in three inch pots. These latter succeed best started in a warm place either in a hotbed or greenhouse, or in the window. Early in June is soon enough to plant the ricinus out of doors, and even later than that in late seasons, as a slight chill ruins these tender plants very quickly.

The cold frame mentioned for raising annuals can be easily made by nailing some pieces of 1 x 12 inch board together, so as to make a frame of the required size. Quite a quantity of seedling annuals can be raised in a very small space in this manner, as a bed two or three feet square will provide an

ample supply of plants for an ordinary sized garden. A sash is not necessary except perhaps on very cold nights or days. Some slats laid across the frame and covered with thick matting in cold stormy weather will answer almost as well as a sash, and is very much safer. Unless the sash is carefully shaded and either lifted off or tilted up on hot sunny days, it is a source of danger. Neglect in attending to shading and ventilating frames where sash is used, has accounted for the sudden destruction of many promising batches of young seedling plants.

About the middle or end of April, or perhaps early in May will be soon enough—if the season is late—to sow most annuals and biennials out-of-doors as before mentioned.

The frame should be placed in a warm, sheltered sunny position of the border, and about six inches of light rich loamy soil put into it. Banking up the frame on the outside with manure or soil will not only assist in keeping out the cold, but also prevent the soil inside from drying out around the edges. As soon as the soil is sufficiently dry and friable to work easily without clogging, the seed can be sown. Drills of the required depth and about two inches apart will be found to be the most convenient for sowing the seed in.

Aster, zinnia, stock, and seeds of a similar size to these should be sown $\frac{1}{4}$ of an inch deep, whilst smaller seeds such as *campanula media*, *antirrhinum*, etc., should only be barely covered with soil. Use a watering pot having a very fine rose or sprinkler for watering these small seeds so as to prevent rinsing.

The pots of stock and nasturtium seeds, should be plunged up to the rim in the soil. This plunging process will prevent them from drying out too rapidly, a condition that is dangerous to the young seedlings; and one that is hard to avoid unless the pots are plunged so as to prevent it. Mignonette is best sown in the open ground where it is

to flower, unless sown very early in pots in the house or greenhouse.

The seedlings should be planted out from the frame as soon as they are large enough to handle. Choose dull showery weather if possible for this operation. Water and shade the plants as required for a few days. For shading, a few pieces of shingle or slats of wood placed so as to break the rays of the sun for an hour or two at mid-day, is better than shading the plants too closely with a close covering. When once well established the plants will require very little attention beyond watering in very dry weather. Even when sown in the open ground, young seedling annuals will benefit by being partially shaded for a few hours during the hottest part of the day. The most critical period with seedlings is just when the seeds are germinating. Allowing the seed to become dry, and a few hours' exposure to the hot sun at this time will prove fatal to most young seedling plants. Water should be given early in the morning before the sun is very powerful.

Among biennials there are only a few species really adapted for successful culture in our gardens; hollyhocks and the various double and single types of the campanula media being about the most remunerative and attractive of this class of plants. Even these are difficult to bring through the winter in many localities, unless well protected during very severe weather, and early in the spring when the snow has melted, leaving the plants bare and exposed to severe frosts at night, and the blistering sun in the day time. The campanula media will however come through the winter successfully some seasons without any protection whatever. The spike of bloom as represented in the March number of journal was taken from a plant that had not had any artificial protection during the preceding winter. The position it was growing in was however fairly well sheltered from the west by a

cedar hedge. Even if only a few spikes of the uniquely shaped flowers of this campanula are obtained, they well repay any extra care and attention bestowed on their culture.

The antirrhinum or snap-dragons are generally classed and treated as biennials. It is impossible however to winter these over in our gardens without the aid of a sash or frame, even this latter method is risky. They succeed splendidly, however, treated as annuals, as seed sown in March or even in April will produce plants that will flower as early as July or August, and continue flowering until early winter. Some of the newer types of antirrhinums, more especially the dwarf varieties, are very pretty and useful, not only to furnish a supply of cut flowers, but their dwarf and compact style of growth and their profuse and continuous habit of flowering, recommend them highly as decorative plants for the flower-garden or mixed border.

Seeds of the hollyhock and the campanula media can be sown either in doors in pots or boxes early in the spring or in the frame, or open border later on. Early sown plants of these should be planted out in May or June in the open border where the plants are to flower. Seed sown in July in the open border, and the plants thinned out if necessary, and transplanted early in September, will often come through the winter better than plants raised earlier from seed sown earlier.

As auxiliaries and extras in the flower garden or mixed border, both for decorative purposes and cut flowers, annuals and biennials cannot well be dispensed with. Their many and varied forms and types, as well as the beautiful shades and tints of their flowers, all of which may develop some new and unexpected feature, make them doubly attractive to the amateur flower-lover. The fact that by successive sowings many varieties can be had in flower in the hot months of summer and in early autumn, when flow-

ers are scarce, makes them of value also to the commercial florist. But for the busy or inexperienced plant-lover, where little care and attention can be given their culture, or where they are depended upon entirely to

beautify the garden or to produce a supply of cut flowers, annuals and biennials have often proved to be only a source of disappointment and failure.

Hamilton.

W. HUNT.

MAGNOLIA STELLATA.



FIG. 2041a. MAGNOLIA STELLATA.

THE above is a picture of Hall's Japan Magnolia (*Halleana*) taken last spring during blossoming season. It is of dwarf habit and produces its pure white flowers, that are semi-double and fragrant, before the leaves appear. It is a wonderful little shrub and was obtained eight years ago from the Arnold Arboretum in Boston, and is now a better specimen, I am told, than can be found in those gardens, which is favorable to its hardiness in our

climate. During the first years after planting, a barrel without top or bottom, was placed over it after hard frosts in autumn, then, as it grew larger, a four-sided enclosure was built around it and last year it was only sheltered on the south and west. It was decided the past winter to leave it unprotected and at this date (the end of February) it is still covered with snow. But I rather doubt the good result of such a stern effort at acclimating, for it may end disastrously when the spring sunshine comes hot and strong, while yet the sap is frozen.

The idea of gradually getting a plant acclimatized seems feasible, but when a severe winter upsets all our theories, and the subject of our experiment becomes but

a lifeless stick, we regret the test. Be that as it may in the future, one thing is sure, that among early flowering shrubs none have such a regal effect as *Magnolia stellata*. Place it as this one stands, in a bed of glowing early tulips that glisten and shade like a rainbow, while it is white and still, full of fragrant blossoms and for beauty without a peer.

ANNIE L. JACK.

Chatauguay Basin, Province of Quebec.



FIG. 2041. AZALEA INDICA.

GREENHOUSE, WINDOW AND GARDEN.—IV.

APRIL will be a busy month in the greenhouse. Potting late struck cuttings from the cutting bed, and potting earlier struck plants of coleus, ageratum and bedding plants generally into larger pots, will have to be attended to.

Fancy caladium corms or bulbs, and tuberous begonias that were placed in sand in the cutting bed last month will soon require to be potted. When the new roots are about an inch long is about the time to pot them. Pot the tuberous begonias into well drained six or seven inch pots, as they are difficult to re-pot. The caladiums can be potted into smaller pots as they are not so difficult to re-pot later on.

Young chrysanthemums must be potted into larger pots. Allowing the roots of

these to become pot-bound not only checks growth, but is an inducement for disease, especially "rust," to develop itself. A few cuttings of chrysanths can still be started for planting thickly on the benches or for growing in pots in the greenhouse.

Carnations can be planted out in the open border as soon as the weather is suitable, which is often not until the end of the month or early in May perhaps. Carnations are to a certain extent hardy, but plants that have been grown under glass must not be exposed to severe frosts unless they have been well hardened before planting them out. Pinch the tips of the growth of the carnations out to induce a bushy, sturdy growth.

Pots of violets that have done flowering can be divided and repotted into 4 inch pots.

The pots can be plunged outside toward the end of the month in a partially shaded position in the garden.

Seedling plants of gloxinia, cyclamen, primula and tuberous begonias can be transferred from the seed pans or pots into shallow boxes, as soon as they are large enough to handle nicely.

Seeds of early annuals and biennials should be transplanted into pots or boxes and placed out-of-doors as soon as the weather is at all suitable. A little shade and protection on hot days and cold nights will be necessary for these for a short time when first put outside. The plants should be well rooted if possible in the boxes, before being put out.

Cuttings and young plants of summer flowering begonias will require potting into 2½ inch pots as soon as rooted. One half loam, and one part each of sand and leaf soil suits these begonias very well.

Plants of azalea indica will require syringing regularly every morning on fine days. Some of the late flowering varieties may perhaps yet be showing some bloom, and care must be taken not to syringe these very heavily.

Lilium Harrisii seems to be grown in less quantities year by year. Immature and diseased bulbs are largely accountable for non-success of recent years with these useful Easter plants.

Roses in pots, or planted on benches, will require plenty of water at the roots. Syringing and fumigating must not be neglected, as insect pests develop very rapidly at this season of the year.

Ventilation must be given freely on hot sunny days. Opening the ventilators as early in the morning as possible consistent with safety, will prevent "fogging" or "damping-off" of the flowers of geraniums, pelargoniums, and other plants.

Dampen the floors early in the afternoon and close the ventilators before sun-down.



FIG. 2042. *Echeveria Secunda Glauca* VAR.

THE WINDOW.—All plants such as palms, dracenas or cordylines and foliage begonias, that require repotting, can be potted in April or May, if proper potting soil can be obtained. Unless suitable soil that is dry and in good condition can be obtained, the plants had better not be potted until later.

Annuals that were sown early will perhaps require thinning out; asters, zinnias, dianthus, gaillardia and phlox, transplant very easily. Harden these plants off gradually by placing them outside on fine days for a few hours.

Several kinds of the 'echeverias make pretty window plants and are easy to grow.

A mixture of rather sandy potting soil suits these plants very well. In summer most of the varieties can be plunged, pot and all, in the garden from June until September, where they will almost shift for themselves. *Echeveria metallica* is an easy variety to grow and, if treated as mentioned, will often develop a flower-spike that produces a number of small, bright red blossoms, that will brighten up the window during a great part of the winter.

The variegated echeveria, sec. gl.

variegata, is a very prettily marked dwarf-growing variety. The plant as shown in the cut is only about four inches in height and a little broader, but its prettily marked, fleshy, pale green leaves that are delicately striped and shaded with white and pink, makes this diminutive type of these plants very conspicuous and pretty when placed so as to contrast with plants having different colored foliage. This variety succeeds best kept in the window all the time, and must not be potted very frequently or given too much water, especially in winter.

Fuchsias must be syringed once or twice a week to keep down red spider.

Cuttings of geraniums, fuchsias, lantanas and similar plants will strike now if placed in sand. Care must be taken not to keep cuttings continually soddened with water. It is better to place them a little in the shade if they wilt, than to deluge them with water all the time to keep them from drooping.

THE GARDEN.—The bulb beds can usually be uncovered about the middle of the month without any fear of injury from frosts to their occupants.

Shrubs and all tender plants, that have been covered up or protected during the winter, can have their winter covering removed by degrees. Sudden exposure to sun and air is sometimes detrimental to many delicate plants, after being closely covered during the winter.

All rubbish and leaves should be raked up and burned. The ashes will make a good fertilizer for use in the fruit, flower or vegetable garden.

Sow sweet peas in drills three inches deep as soon as the ground can be worked. Early sowings of these usually give the best results.

Give the herbaceous border and all small fruits—except strawberries—a coat of rotten manure; this should be forked under the ground as soon as convenient. Strawberry

plants should have their winter covering removed.

Hardy rose bushes should be pruned at once, if not already done. These should also have a coat of manure or some bone dust forked in around them, before growth commences.

In the vegetable garden the asparagus bed will require the first attention. Fork it carefully over as soon as possible, and give it a good dressing of salt and nitrate of soda, as recommended at page 32 in the January number of Journal.

Plant artichokes as soon as you can, after the frost is out of the ground. Whole, uncut sets of these nutritious, but little used, vegetables must be planted to secure a crop. Plant the sets four inches deep, and eighteen inches apart in the rows. The rows should be about three feet apart.

If early cabbage and cauliflower plants have been grown, they can be planted out about the end of the month, or early in May.

A sowing of early and late varieties of peas should be made as soon as the frost is out of the ground. By sowing early and late varieties together, successive pickings are secured.

Parsnips and onions should be sown as soon as the soil can be raked without clogging the rake. These cannot be sown too early if the soil is in proper condition. Any parsnips that were left in the ground during the winter should be dug up and placed in the cellar. These will be found to be in splendid condition for the table, after being subjected to a winter's frost, and are far nicer flavored than those dug in the fall, besides being more wholesome.

A row or two of early carrots and beets should be sown, the main crop of these should be left a week or two later.

Parsley seed is also best sown as early as possible. Sow it thickly in drills about half or three-quarters of an inch deep. The

ground where it is sown should be raked level, and the soil pulverized fine. Parsley seed is very slow in germinating, taking three or four weeks before it shows any sign of growth, unless the weather is very favorable.

A row or two of lettuce seed should be sown as soon as the ground can be worked nicely. The early Ohio and the Hanson are two good varieties.

A packet of leek seed sown early will give quite a number of plants for planting out later on. Leek seed should be sown in shallow drills about three-quarters of an inch deep. Later on, when the plants are four or five inches high, they can be planted in shallow trenches in a few inches of soil,

underneath which has been placed some well rotted manure.

It is hardly safe to plant dwarf or pole beans until the first or second week in May.


A few sets of early potatoes can be planted early in May, or earlier if the weather is suitable. The Van Ornam and the early Ohio are two of the best first early kinds.

A good sized bed of spinach should be sown early, as the first sowing is usually the most productive and nicest eating. Late sown spring spinach is an uncertain and oftentimes useless crop, as it is generally tough and flavorless in the hot weather. The Viroflay is about the best variety for spring sowing.

Hamilton.

W. HUNT.

HOW TO MAKE CUTTINGS.

 BIT of a plant stuck in the ground stands a chance of growing and this bit is a cutting. Of most flowering plants cuttings or slips are taken from the green or growing wood. To tell whether the wood is in the right stage for taking cuttings give it a quick snap between the fingers and if it snaps and hangs by the bark it is all right; but if it bends without breaking, it is too young or old; or if it splinters, it is too old and woody. Sand or gravel is the best soil to start the cuttings in. It should be kept wet all the way through and be protected from the sun and too

rapid evaporation. A newspaper thrown over a box of cuttings is a good protection.

The tips of strong, upright shoots usually make the best cuttings. Each slip should have a joint near the base. Allow two or three leaves to remain near the top and if the leaves are too large, cut them in two. As soon as new leaves start well and the cutting is rooted, it may be potted into good soil in pots or boxes, but it may take several weeks or even months for the cutting to take root. As long as they remain green they are all right.

THE WAY TO FORCE PLANTS TO BRANCH.

—There is only one way in which a plant can be forced to branch, and that is by cutting off the stalk. The plant thus interfered with will make an effort to grow, and either a new shoot will be sent up to take the place of the lost top, or several

shoots will be sent out along the stalk. If but one starts cut it back. Keep up this cutting-back process until you have obliged as many branches as you think are needed. Persistency and patience will oblige the plant to do as you would like to have it do.
—*April Ladies' Home Journal.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrears must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE LEGAL APPLE BARREL.—Mr. E. D. Smith, M. P. for Wentworth, writes that American barrel, holding 96.51 imperial quarts has been made legal in Cap. 37, Victoria 63-64, 1900. The same act makes it punishable with a fine of 25 cents a barrel to use a barrel of smaller dimensions.

YORK IMPERIAL AND SUTTON BEAUTY apples have been fruited at the experimental orchards of the Fonthill nurseries. Of the former Mr. Wellington writes, "We think so highly of it that we are grafting an old orchard on a farm we purchased, entirely to that variety." Of the latter he says, "we believe it all right for Canada. We have sold thousands of trees which will soon come into bearing."

"Great Crops of Small Fruits and how to Grow Them" is not a mere catalogue; it is

the title of a treatise on plant life and the laws which govern the development of fruit in plants; and one which has worked a revolution in small fruit growing. Mr. R. M. Kellogg, the author, writes that he will send it free to those of our readers that apply for it.

WASH FOR SAN JOSE SCALE.—Mr. N. Keep, Winona, has just received the following recipe for a spray to kill the scale and sends it us for publication. He says it was sent him by his father-in-law in California:—40 lbs. lime, 20 lbs. sulphur and 15 lbs. of salt; take 10 lbs. of the lime, all the sulphur, and boil till thoroughly dissolved in 20 gallons of water. Slake the balance of the lime and salt together in hot water, mix and add enough water to make 60 gallons. Apply with a force pump when cold.

A DISEASE of the Cherry Tree was noticed early last summer in the cherry orchards of Kent, England. Caruthers, the consulting botanist, says it is a leaf disease, affecting the fruit also, which it renders unfit for market. In the autumn and winter diseased trees are readily detected by their holding their leaves like trees cut down in summer foliage. The growth of the wood is stunted owing to the death of the leaves. He says :

Sections through the leaf stalk show also a very luxuriant growth of the mycelium which is confined to the cortical tissue. It is very irregular in form and pushes its way between the cells. It does not extend beyond the petiole, stopping short at the point where the large cortical cells of the petiole are in contact with the small round compact cells of the twig into which the fungus does not penetrate.



FIG. 2043. Fragment of Leaf of Cherry Tree showing groups of parasitic fungi.

The disease has been spreading rapidly in Kent during the last few years. The varieties of cherry trees that have been reported as specially liable are Waterloo, Bigarreau, Napoleon, Blackhearts, and Eltons; Governor Woods have not as yet suffered much and English and Flemish reds and May Dukes have not been attacked, though odd trees of other varieties, such as Bigarreau, growing among them have been diseased. In one orchard the disease attacked Waterloo first, soon spreading to other kinds, while at another place this variety had not been affected until last year and then only the leaves had suffered; the fruit had not been damaged.

The only remedy proposed in the old country is the gathering and burning of the

leaves. In Canada, no doubt, spraying with Bordeaux would be proposed.

Cherry cultivation is just coming to the front in Ontario, and we hope this disease may not cross the Atlantic.

UNIFORM PACKAGES FOR FRUIT.—The recommendations of our Committee on Uniform Packages have been made into an Act to amend the Weights and Measures Act, under the direction of our member for Wentworth. Mr. E. D. Smith writes that he is having the Bill prepared in both French and English, and that it will be shortly brought in for discussion. The following is a copy.

1. Every box of berries or currants offered for sale in Canada shall be plainly marked on the side of the box, in black letters at least half an inch square, with the word "Short," unless it contains when level-full as nearly exactly as practicable :—
 - (a) at least four-fifths of a quart, or
 - (b) two-fifths of a quart.
2. Every basket of fruit offered for sale in Canada, unless stamped on the side or cover, plainly in black letters at least three-quarters of an inch deep and wide, with the word "Quart," in full, preceded with the minimum number of quarts, omitting fractions, which the basket will hold when level-full, shall contain, when level-full, one or other of the following quantities :—
 - (a) fifteen quarts or more;
 - (b) eleven quarts, and be five and three-quarter inches deep, perpendicularly, inside measurement, as nearly exactly as practicable;
 - (c) six and two-thirds quarts, and be four and five-eighths inches deep, perpendicularly, inside measurement, as nearly exactly as practicable; or
 - (d) two and two-fifths quarts, as nearly exactly as practicable.
3. Every person who neglects to comply with any provision of this Act and any person who sells or offers for sale any fruit in contravention of the foregoing provisions of this Act, shall be liable, on summary conviction, to a fine of not less than twenty-five cents for each basket so sold or offered for sale, and the fine shall go to the informant.
4. This Act shall come into effect on the first day of February, 1902.

LECTURERS TO AFFILIATED SOCIETIES.—Mr. G. C. Creelman, Superintendent of Farmers' Institute, paid us a visit recently to discuss plans for the carrying out of the lectures before our affiliated Horticultural Societies. The Department of Agriculture

has consented to take this work in hand, and carry it on in a much more vigorous manner than we have been able to do. We feel sure that this plan will be a fresh inspiration to all our societies.

Already Mr. Creelman has prepared and sent out the following letter :

DEAR SIR,—At the request of the Ontario Fruit Growers' Association, and with the consent of the Hon. Minister of Agriculture, the lecture work in connection with the Horticultural societies of the province has been transferred to the Department of Farmers' Institutes.

I understand that it has been the custom of the Association in the past to send a speaker to address your meeting once every year, and it is the duty of your association to supply a comfortable hall and advertise the meeting sufficiently to ensure the delegates an interested and representative audience.

I should be glad to hear from you at once whether you wish to continue this practice. I can arrange to have a speaker attend the meeting in your town in March or April, and as a number of your members are also members of our Farmers' or Women's Institutes, it might be possible for us to arrange for one of our lady delegates to accompany the gentleman who will address your meeting. This lady would be prepared to speak on subjects connected with the home, and together with such local talent as you have in your society, would, I think, make a very attractive programme.

It might also be arranged to have the delegate, or delegates, address the school children in the afternoon of the day on which they are to attend your meeting. Besides pleasing and instructing the children, it would be a means of supplementing your advertising, and through them the adults at home would be reminded of the entertainment at night.

Hoping to hear from you at an early date, I am,

Yours very truly,

G. C. CREELMAN.

HYACINTHS AND NARCISSI—A subscriber in Ingersoll kindly encloses to us an amateur



FIG. 2044. TULIPS AND NARCISSI.

photograph of these bulbs in bloom, grown by him in pots without a greenhouse. There were twelve large blooms of Von Sion in the fern dish, and four large spikes of miniature hyacinths in the left. He writes, "I very much appreciate the advertising columns of the Horticulturist, because I have been anxious to have the names of good Canadian firms. I consider Mr. Hunt's articles excellent."

QUESTION DRAWER.

Lawn Grass.

1209. SIR,—I wish to make a lawn in the spring. The soil is fairly good clay loam, having been levelled and put in as good condition as may be last fall; what kind of seed should one sow, and should it be put on thickly and at what time; would a dressing of some fertilizer be beneficial; if so, what kind, and when applied? By answering above you will confer a favor on

Chatham.

SUBSCRIBER.

Maynard, in his Landscape Gardening, replies to these enquiries very well. Only those grasses, he says, which make a fine spreading growth, give good results in lawn making. "The best kinds for general purposes are the bent grasses, and June grass, which spread rapidly by underground

stems that quickly fill up any vacant spaces between the grass plants and thus prevent the growth of weeds. White clover is generally used in making a lawn, as it grows close to the ground and fills up all spaces not occupied by the grass roots.

While spring is the best time in which to seed a new lawn, it may be done at any time if the proper conditions of moisture can be obtained. A very large amount of manure or fertilizer and a moist condition of the soil will enable one to seed a lawn successfully at almost any time of the year, but these conditions are not so certainly secured at any other time as in spring. In fall seeding, unless done very early, the young plantlets are likely to be thrown out by frosts and a second seeding be required in the spring. Another reason why spring is better than summer for seeding is that weed seeds do not grow so readily and abundantly at this time. Coarse stable manure should never be used upon the surface of the land because it encourages the growth of weeds; but if turned deeply under, nothing can be better to hold the moisture in the soil and encourage deep rooting of the grasses.

The amount of seed to be used will depend somewhat upon the season when sown and the probable amount of weed seeds that will germinate with the grass seed. When sown in April, May or September, less seed should be used than if sown in June, July, or August, and more seed than when it is comparatively free from such pests.

It is always best to use an abundance of seed, as there may be some uncertainty of its all germinating. Perhaps the quantity per acre that will give the best results under the average conditions is two bushels of bent grass, i. e., red top or its varieties, two bushels of June grass and ten pounds of white clover. One half of this quantity would be sufficient if it was all certain to

germinate and if no weed seeds started into growth.

After the land has been made perfectly smooth and fine by raking, rolling and re-raking, the seed should be divided into two or more lots. The first lot is then sown in strips or lands, as evenly over the surface as possible, and then raked in, taking care not to move the soil from place to place, thus bunching up the grass seed with it. The second lot of seed is then sown in strips crossing the land in the opposite direction from the first sowing, thus securing the most even distribution of the seed possible.

A rake with long teeth set about two inches apart is better than the common iron-toothed garden rake. If nothing better can be obtained, the common wooden hay rake will be found to work well.

It is the general practice to roll the ground with the garden roller after the seed is sown, but in extremely hot and dry weather, while the soil may be more thoroughly firmed about the seed by rolling, the smooth rolled surface leaves the young seedling so much exposed to the action of burning sun and drying winds that grass often does better if the surface is not rolled at all."

Potatoes Too Small.

1210. SIR,—My soil seems very rich and everything grows well except potatoes and they are very small; what can I put on my ground to increase their size? It has been enriched from the barnyard every year.

D. LAW.

Probably our correspondent has used too much stable manure. The best growers advise no stable manure for the potato, unless it be the year preceding the crop; for they say it lessens the crop and predisposes to rot. Better try superphosphate in the hill at the rate of say 200 lbs. per acre, raked into the surface soil just before planting, and just before the last hoeing sprinkle with wood ashes.

Fall Flowering Shrub.

1211. SIR,—Please tell me of some flowering shrub for the fall that grows five or six feet high, and that would be hardy for this point.

Port Dover.

D. LAW.

We know of nothing better than *Hydrangea paniculata grandiflora*. This is a beautiful shrub, one that succeeds every time up on St. Joseph Island, in Lake Huron. It grows about 8 feet high and blooms in August and September, when very few shrubs are in flower. The flowers are white and borne in great pyramidal panicles a foot long.

Plums Rotting.

1212. SIR,—On receipt of this kindly inform me what will prevent my plums from rotting on the trees. They commence to rot about the time they begin to ripen.

Blenheim.

G. R. GRAINGER.

This is one of the serious difficulties of the plum grower, especially in the case of such varieties as the Lombard which is very susceptible to it. Thinning the fruit before maturity is an excellent plan, for it prevents the spread of the disease from one fruit to another, and at the same time increases the size and improves the quality.

In addition to this, spraying with Bordeaux is specific treatment for plum rot and this should be done both before and after

blossoming, and again after a fortnight or so.

Importation of Nursery Stock.

1213. SIR,—In the Order in Council re importation of nursery stock, page 48, Canadian Horticulturist, you do not give the dates during which in spring and fall the goods may be imported. Would you please give me the dates during which importation is allowed.

Kingsville, Ont.

C. R. MATTHEW.

The dates for St. John, St. John's, Niagara Falls, Windsor and Winnipeg are March 16th to May 15th, and October 7th to December 7th; and at Vancouver from October 15th to March 15th.

Beggar Weed

1214. SIR,—On page forty-two of the January number of the Canadian Horticulturist, 1900, there is an article written by Capt. E. A. Wilson, on the subject of using "Beggar Weed" as a foliage plant, etc. Can you tell me whether that was tried last year in your vicinity, or as far north as this part of the country, and if so, whether the result was satisfactory, or in other words did it prove to be an available legume for this climate. I know it is fine, and will bear Mr. Wilson out in what he said of its merits for such purposes in the south, especially in Florida.—Very respectfully,

Lockport, N. Y.

E. ASHLEY SMITH.

We have mislaid his address, but we think that Capt. Wilson is an American, we think of the Southern States, so that his experience would be no guide to us at the north. We do not know of this plant having been tried in Canada.

Open Letters.**Transportation of Fruit.**

SIR—I notice in the February number of the Horticulturist in connection with the article on the Brantford meeting, that in reporting for the Transportation Committee I am made to say that it is impossible to put 20,000 lbs. of grapes or mixed fruit in an ordinary car owing to the light weight of the fruit, and consequently the shipper is unable to take advantage of the reduction of the C. L. rate in the case of grapes. This statement, Mr. Editor, is incorrect and misleading.

The report stated that the committee had succeeded in obtaining a reduction in the classification of grapes in car-loads of \$1.00 per ton equal to \$10.00 per car-load of 20,000 lbs.; also the privilege of loading in the same car mixed fruits such as peaches, pears, plums, grapes, in

baskets, and apples in barrels, in order to make up a car-load, and the various packages to bear their respective car-load rates. This privilege was largely offset, however, and destroyed by the restriction that in such cases 24,000 lbs. shall be the minimum C. L. This is a manifest injustice as it practically prevents putting in a few barrels in a carload of fruit from time to time at a reasonable rate unless the minimum be raised to a limit where there is too great a body of fruit packed together for the proper and safe carriage of same.

A few of the principal changes in the present tariff and arrangements that the fruit industry requires and which should be granted by the R.R. Companies are as follows:

1st. A more reasonable rate for the carriage of fruit to the Northwest provinces—at present the rate is equivalent to one half or more of the usual

gross value of the goods at wholesale in Manitoba.

2nd. A more satisfactory classification of mixed fruits in one-half carloads and carloads for all points in Ontario and Quebec, of sufficient size to absorb large quantities regularly.

3rd. A considerable reduction in the inter-provincial rate in apples in barrels.

4th. A more efficient and prompt transportation of fruits by special freight service when quantities are sufficient, and better connections with local way freight trains when quantities are smaller.

As the fruit industry grows and extends there is no doubt but that the R.R. people will see the advantage of catering more fully to the trade.

Yours respectfully, W. H. BUNTING,
Chairman of Committee.
St. Catharines, February 28th, 1901.

Appreciation

SIR,—Please accept thanks for the beautiful annual report of the Fruit Growers' Association for 1899. Have received one of the reports every year since 1891, nine copies in all. They are well bound, and are quite an addition to my library shelves.

I prize them for the valuable information which they give on fruit growing as well as general information on all kinds of Horticulture. Have grown small fruit six years in Sinaluta with success, in fact supplied my table all the year round out of a plot of ground fifty feet by forty.

So far mine is the only fruit garden in the village. Am trying to persuade others to beautify their homes in the same way.

Again thanking you for the report.

I remain your's truly
Sinaluta, Assa., N. W. T. J. W. MOODY.

Our Affiliated Societies.

TORONTO JUNCTION.—The regular monthly meeting of the Toronto Junction Horticultural Society was held in the council chamber, Toronto Junction, on the evening of February 28th, at 8 o'clock, Hon. President A. Gilchrist presiding. According to notice by the society's private post card mailed to every member, President Colbeck delivered an address on the subject "Southern California—a Horticulturist's Paradise." There was a fair attendance of members who listened with the keenest appreciation to the president's interesting account of the wonderful development which, aided by favorable climatic conditions, had taken place in several sections in Southern California, especially in Riverside and Pasadena.

The lecturer urged that while results equal to those achieved in the towns named might not be achieved in Toronto Junction, a good deal might be done towards that end by a determined effort on the part of members of the society.

A hearty vote of thanks moved by Capt. Ross and seconded by Mr. Watson, was tendered President Colbeck for this interesting and instructive address.

The following programme for the meetings of the society for the year was arranged:—

1. California—a Horticulturist's Paradise. F. C. Colbeck. Thursday, February 28th.
2. Trees and Tree Planting. Arch. Gilchrist. Tuesday, March 26th.
3. The best flowering Shrubs for Ontario. J. G. Goodall. Thursday, April 18th.
4. Herbaceous Plants. Jno. McP. Ross. Thursday, May 16th.
5. Noxious Insects and Insectivorous Birds. C. W. Nash. Thursday, June 13th.
6. Melons. J. B. Spurr. Thursday, September 19th.
7. Bulbs for Fall Planting. Arthur W. Annadale. Thursday, October 18th.
8. What I Saw of Horticulture in Europe. Thos. Rennie, Thursday, November 14th.
9. Parasites. M. A. Chrysler. Thursday, December 12th.

PARIS.—At the annual meeting, the Secretary read the following report;

To the Members of the Paris Horticultural Society.

Your Directors beg leave to present their Second Annual Report as follows:

1. Instead of taking the benefit of 20 per cent. discount allowed by the Ontario Fruit Growers Association, in cash, your Directors decided to take it in extra premiums, believing that the objects of the Society would be better served, by introducing all the new plants and flowers possible, especially as we began the year with a good balance on hand.

2. In March we had a visit from Mr. Bacon, of Orilla, who delivered a most interesting lecture on "Bulbs." This lecture was one of the course under the auspices of the Ontario Fruit Growers Association.

3. Owing to the increased ravages of insect pests, and to the desire of fruit growers to destroy them as much as possible, your directors decided to purchase a spraying machine for the use of members of the society. This was done and the fruit trees of members in the town were sprayed three times, at a cost to the members of actual disbursements. Enough was learned to satisfy us that the use of the machine will be of great benefit, not only to the members individually, but to the Society as a whole, as a means of inducing new members to join. We would recommend that in future, the benefits of the machine be limited strictly to members of this Society.

4. On August 9th, a Flower Show was held in a large tent on the lawn of the Congregational church. The exhibit was large, particularly in cut bloom, and although not limited to members, it is pleasing to note that the great majority of prize tickets were captured by members of this Society. A nominal admission fee of ten cents was charged to non-members, as the receipts showed that a large number of the public took advantage of the show. The plants, grown from

the bulbs distributed to all members were here shown and the awards made. There was a large entry list in this section, thus improving the wisdom of the Society's action in stimulating competition. Not the least interesting feature of the show was the presence of Mr. William Bacon, of Orillia, who acted as judge, and at the same time gave the exhibitors the benefit of his ripe experience in floriculture. His address at the close of the show was most instructive. Our thanks are due to the officers of the Congregational church for their kindness in placing their grounds at our disposal, free of cost.

ORILLIA.—The first monthly meeting of the Directors of the Horticultural Society was held in the Council Chambers on Tuesday evening. Notwithstanding the intense cold, there was a fair attendance. Mr. Bolster, President, occupied the chair. Several matters pertaining to Horticulture were discussed. Mr. Street mentioned a pest, new to this part of the country, which had appeared on his stocks, and it was decided to submit a specimen to Professor Fletcher, of the Central Experimental Farm, with a view to ascertaining the speediest method of exterminating it. Mr. C. E. Grant gave interesting information as to some insects, including the much-talked-of "kissing bug." It was decided to invite Professor Fletcher again to visit Orillia and deliver his lecture on insects and insecticides. Mr. Grant kindly promising the use of his fine collection to illustrate the lecture. Mr. A. B. Thompson brought up the question of encouraging the beautifying of streets and private grounds throughout the town. He suggested that the Town Council, the Board of Trade and the Horticultural Society might issue a circular, offering some encouragement to those who plant shade trees in the streets.

GRIMSBY.—A most successful parlor meeting of this Society was held one evening in February at the home of Mr. M. Pettit, Winona. The principal address was by Mr. N. Keep who gave a detailed account of his experiences in raising flowering bulbs, and at the same time showing specimens of the same, grown in his own little greenhouse. This was followed by an excellent programme of music and recitations.

This Society has adopted the plan of giving away plants as premiums for the exhibits, this

being much more in line with our work than giving money prizes.

OTTAWA HORTICULTURAL SOCIETY.—This is a most progressive Society. The directors have issued a circular to their members, which read as follows:—

In again presenting a Premium List to the members, the President and Directors of the Ottawa Horticultural Society beg to state that the greatest care has been exercised in choosing the plants, bulbs, &c., for distribution, and also in arranging the prize list, and they trust that the liberal offer made this year will, as hitherto, meet with the approval of the members.

With the object of developing bulb growing—both in the dwelling house and in the garden—a list of suitable and desirable bulbs was, last year, included in the Premium List in addition to the spring distribution of plants and seeds. This step proved a most popular one with the members and the results were so gratifying that it has been decided to again this year offer a list of first quality bulbs, selected with a special consideration of the likely conditions of the members. This, together with the spring distribution, special donation, and the large number of prizes and special prizes (see prize list) for exhibitors, is a more liberal offer than accorded to members of any other Horticultural Society in Canada, but by this means the Directors feel that they are fully carrying out the objects of the Society. The Ottawa Horticultural Society is, perhaps, the most prominent and strongest Horticultural Society in Ontario; it has steadily increased its membership roll year by year and it is the hope of the Directors that it will continue to grow and have a marked influence on horticulture in this district. They trust, therefore, that the members will assist in the good work by bringing to the notice of their friends the object of the Society, pointing out the advantages and privileges its members enjoy.

In addition to the choice selections of bulbs to be distributed in September, and the extensive list of plants, &c., to be delivered in May, each member will receive one plant of Maule's Japanese Quince, donated by the Experimental Farm. The flowers of this shrub are very ornamental, being large and bright red, and in the autumn when the golden colored, highly perfumed quinces are ripe it makes a very interesting object.

LITERARY NOTE.

THE MACMILLAN COMPANY has just issued *The Elements of the Theory and Practice of Cookery*; a Text-book of Household Science for Use in Schools, accompanied by a Teacher's Manual, by Mary E. Williams, Supervisor of Cooking in the New York Public Schools; and Katharine Rolston Fisher. The three parts into which the book is divided include (1) Preparatory lessons on Air, Fire, Fuel, Water, Cleaning, etc; (2) Starch and the Cooking of Starchy Foods, Eggs, Milk, Bread, Food in its relation to the body, Flesh used as Food, Fats and Frying, Vegetables. the Service

of food, Study of digestion; (3) Sugar and sweet dishes, Preservation, Diet for invalids, Diet for babies and little children, miscellaneous topics. The convenient arrangement of the subject-matter its adaptability to individual, group or class work, the saving of time effected by the use of a book containing notes and receipts that have ordinarily to be copied or taken from dictation, and the suggestions to the pupils concerning supplementary reading, are points that will be appreciated readily by the teacher.

Lectures Before Horticultural Societies

Below will be found a list of the dates and places where arrangements have been made to hold meetings of the societies during April.

The work of arranging these has been transferred from the Fruit Growers' Association to the Department of Farmers' Institutes, and hereafter all communications in reference to lecture work connected with these societies should be addressed to G. C. Creelman, Superintendent of Farmers' Institutes, Parliament Buildings, Toronto.

The meetings as arranged this year differ somewhat from those held in former years, in that in some instances a lady has been added to assist the regular delegate at their meetings.

It has also been arranged that all speakers shall visit and address the children of the Public and High Schools in the afternoon of the date on which the meeting is to be held. It is hoped that in this way the pupils may be instructed in matters pertaining to horticulture and nature study, and that the meetings at night may also be helped by the advertisement given them in the schools.

DELEGATES—W. N. HUTT, Southend, and Miss BLANCHE MADDOCK, Guelph.

Subjects—W. N. Hutt: (1). Insect Friends and Foes. (2). Birds in Relation to Horticulture. (3). Pruning of Trees and Plants. (4). Beautifying the Home. (5). Spraying Mixtures and Their Application.

Miss Maddock: (1). Fruits and Vegetables as Articles of Diet. (2). Window Gardening.

Lindsay	- - - - -	April 9th
Port Hope	- - - - -	" 10th
Cobourg	- - - - -	" 11th
Stirling	- - - - -	" 12th
Picton	- - - - -	" 15th
Iroquois	- - - - -	" 16th
Cardinal	- - - - -	" 17th
Thornbury—Mr. Hutt only	- - - - -	" 18th
Owen Sound—" " " "	- - - - -	" 19th

DELEGATES—WM. BACON, Orillia, and Miss BLANCHE MADDOCK, Guelph.

Subjects—Mr. Bacon: (1). A Talk on Some Really Desirable Plants, Their Season and Care. (2). The Bulbous Family Presented in a Popular Manner. (3). The Verandah, Its Shade and Environment.

Miss Maddock: (1). Fruits and Vegetables as Articles of Diet. (2). Window Gardening.

Niagara Falls	- - - - -	April 22nd
Grimsby	- - - - -	" 23rd
St. Catharines	- - - - -	" 24th
Simcoe	- - - - -	" 25th
Oakville	- - - - -	" 26th

DELEGATE—A. MACNEILL, Walkerville.

Subjects—(1). The Fertilization of Flowers. (2). House Plants. (3). Plants, trees and shrubs for the ordinary town lot.

Cayuga	- - - - -	April 8th
Port Dover	- - - - -	April 9th

DELEGATES—A. MACNEILL, Walkerville, and Miss LAURA ROSE, Guelph.

Subjects—Mr. MacNeill: (1). The Fertilization of Flowers. (2). House Plants. (3). Plants, trees and shrubs for the ordinary town lot.

Miss Rose: (1). Why I Have a Garden. (2). Economic Gardening.

Woodstock	- - - - -	April 10th
Paris	- - - - -	" 11th
Hespeler	- - - - -	" 12th
Guelph	- - - - -	" 13th
Elmira	- - - - -	" 15th
Mitchell	- - - - -	" 16th
Seaforth	- - - - -	" 17th
Clinton	- - - - -	" 18th
Kincardine	- - - - -	" 19th

DELEGATE—DR. JAMES FLETCHER, Experimental Farm, Ottawa, Ont.

Smiths Falls and Perth, dates to be arranged later.

For Perfect Fruit

SPRAY YOUR ORCHARDS

WITH THE

Spramotor



Intelligent and timely Spraying will make your orchard profitable. The Spramotor is the result of careful experiment and is kept right up to date. Met the world in open competition on the invitation of the Ontario Government and won the award.—This should mean something to you. The Spramotor has never been defeated.—All castings solid brass, cylinders made from drawn brass tubes. All parts interchangeable. Saves fifty per cent. in labor. Most economical because solution goes farthest and most effective because it throws anything from a misty spray to a solid stream. Will also whitewash or paint your buildings. Free treatise for your address,

THE SPRAMOTOR CO.,
LONDON, ONT.

PLANT DISTRIBUTION FOR 1901

FRUIT.

A. CUMBERLAND RASPBERRY, TWO PLANTS.

Described by the Introducers as follows:

This new Raspberry originated nine years ago with Mr. David Miller, a life-long horticulturist and fruit grower, who thoroughly tested it under all conditions. It is offered with the assurance that it is *the most profitable and desirable market variety yet known*, because of its *immense size, firmness and great productiveness*, well entitling it to the designation of "*The Business Black-Cap*." It has undergone a temperature of 16 degrees below zero, unprotected, without injury—a temperature which badly crippled similarly situated plants of Gregg, Shaffer, Cuthbert, etc. It is of wonderful productiveness, producing regularly and uniformly very large crops. *In size, the fruit is simply enormous*, far surpassing any other variety. The berries run seven-eighths and fifteen-sixteenths of an inch in diameter. In quality it is similar and fully equal to Gregg. Although extremely large, it is unusually firm and is well adapted for long shipments. In ripening it follows Palmer and precedes Gregg a short time, making it a midseason variety. It is an unusually strong grower, throwing up stout, stocky canes, well adapted for supporting their loads of fruit.

It is thought to be a seedling from Gregg, with a dash of blackberry blood in it. The Cumberland is a true raspberry, but it may be of interest to state that several seedlings from the Cumberland have had true blackberry foliage.

J. W. Kerr, Denton, Md., a well known horticulturist says:

"There is no horticultural effervescence in me; otherwise, I would bubble over or burst when I look at the fruit on those three plants of Cumberland Raspberry. I have grown Mammoth Cluster and Gregg that were very fine, **but this Cumberland is really a marvel.** Fifteen-sixteenths of an inch diameter was the measure of as large a berry as I saw of it, but they were all large. I let all the plants carry all the fruit they set, and they were very full. If this season's behavior is a safe criterion to judge by, I pronounce it vastly superior to any Black-cap I know anything of. I never knew any of its type to be so long in form as it is."

FLOWER.

B. SPIRÆA JAPONICA BUMALDA, ANTHONY WATERER

The Rural New Yorker says of it:

The most satisfactory Spiræa in existence; a constant bloomer. The plant is of low growth; the umbels of a bright pink color, brighter than those of its close relative, Bumalda. A profuse bloomer. Introduced there a few years ago.

Mr. Wellington says of it:

"Am also sending bloom of Spiræa Waterer. Quite a sight in nursery row and they bloom till frost comes."

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1901 in before the end of 1900. We want to make the first year (1901) of the new century a **record breaker** for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are **new** and **valuable**.

Any person sending in two names and two dollars, may have an extra plant in place of commission, and thus have for himself both the Spiræa and the Raspberry.

New Subscribers sending in one dollar for the year 1901, may have the balance of the year 1900 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

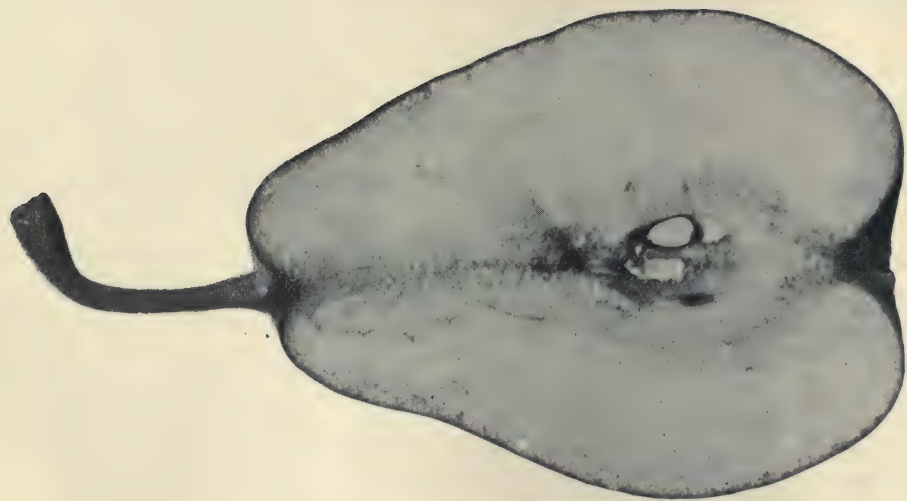
Remember the old proverb, "First come, first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants of trees from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.

PLEASE NOTICE that the descriptions above are by the introducers. We expect our readers to test them and report where these novelties are as described.



FIG. 2945. THE LOUISE BONNE PEAR.



THE CANADIAN HORTICULTURIST

VOL 24

1901

No 5

* * May * *

THE LOUISE PEAR.

NOW that Canadian pears are finding a place in British markets, and are likely to bring our growers remunerative prices, it will be most important to inquire what varieties should be planted for that object. The fewer the number of varieties sent forward the better will these become known in the markets and consequently the readier will be the sale for them if really desirable.

We, in Ontario, grow too many varieties of fruits for our own best interests. We are too easily tempted by the nursery agent to believe in every new kind which he extols, and in consequence we grow too few fine samples of any one variety to make an impression upon any market. This mistake must be remedied if we would achieve success.

All useless and small sized varieties of pears and apples must be top worked to better kinds, and in our new plantations we must plant only the very best. One variety of pear, for example, of its season is enough, unless there is some special reason for more. In Bartlett season, we need no other variety. Then when the Duchess goes forward what better variety could be marketed; especially if you know how to grow it? Then comes

Bosc, Lawrence, and Anjou in order, varieties well calculated to rule their season.

Now if our growers will pursue this course, and plant in quantity just enough varieties to cover the season, they can soon make up car lots of a certain kind, and make that kind known and called for in the best markets of the world.

The Louise Bonne is an excellent old French variety that may well be included in our list for export. In one of our experimental shipments this variety sold at the highest price of any. It is a tender variety, inclined to ripen rapidly after it is gathered, but not so rapidly as the Bartlett. In proper cold storage it goes over in perfect condition, and with its deep red blush on a yellowish ground presents a most tempting appearance, creating a favorable impression which its excellent quality will sustain. One caution however is worthy of the attention of fruit growers who propose to grow this pear for profit, and that is to give it the best of manure and cultivation, else it is inclined to be below size and often knotted on one side. To be fit for export it should be at least $2\frac{1}{4}$ inches in cross diameter, and of perfect form.

The writer has grown this variety for

thirty years past at Maplehurst, on soils varying from sandy loam to clay, and has had best success in a deep, rich, sandy loam not too dry. It should always be grown as a dwarf; we have never succeeded in growing the fruit of first class size on a standard tree. Every year it needs, like other dwarf pears, a careful cutting back to keep up a vigorous growth of young wood, and to keep the form of the tree symmetrical.

Leroy in his *Dictionnaire de Pomologie* gives a curious account of the origin of the name. A gentleman of Normandy named Longueval first grew it from seed in 1780. He lived at Avranches where in a quiet retreat lived an abbé who was esteemed the wisest pomologist of the eighteenth century. Their love of horticulture made these two intimate friends, and one day when dining together, during dessert, the abbé was asked by Longueval to taste the first fruit of this remarkable pear.

Finding it possessed of great merit he courteously said to Madame Louise de Longueval, whose many virtues he highly appreciated;—"That new pear is so perfect, that I beg permission to give it the name which each of us give you, viz., 'Bonne Louise.'"

The following is a brief technical description of this variety:—

Louise—(Louise bonne de Jersey). An excellent export pear if well grown. This and the Duchess have long held the first place as market varieties with growers of dwarf pears in Ontario.

Origin, at Avranches, France about 1780 by Mr. Longueval, and named after Madame Louise de Longueval. About 1827, grafts were secured by Andre Leroy of Angers. The original tree is said to be still standing.

Tree, hardy in southern Ontario, succeeds better on quince than on pear stock; a vigorous upright grower; very productive if well cultivated and set in deep rich sandy loam.

Fruit, large, often $3\frac{1}{2}$ inches in length by $2\frac{1}{2}$ in width; pyriform, sides usually unequal; skin, smooth, yellowish green with brownish red cheek, with numerous red and brown dots; stem, one to one and a half inches long, usually fleshy at insertion on one side, somewhat swollen at each extremity, set in a very slight if any depression; calyx half closed, set in a wide, shallow, slightly plaited basin.


Flesh, white, texture fine grained, juicy, buttery, melting; flavor, pleasant, aromatic.

Season, September 15th to October 15th.

Quality, very good for dessert purposes.

Value, home market fair; foreign market first class.

THE HORTICULTURAL SOCIETY LECTURES.

UR Horticultural trip has been fairly successful. The meetings have been large and the interest more than usual. I have been asked on every occasion to take up "Trees, Plants and Shrubs for the Ordinary Lawn Lot." The plan of my talk is simple. I take up the principles underlying transplanting, then arrangement of trees, shrubs and flowers in relation to the house and lawn and street, and then take up the characteristics of as

many as possible of the desirable trees, shrubs, vines and herbaceous plants, showing how they may be used to secure a pleasing effect during the whole year. As an introduction I outline the work of the provincial association till it has included all the horticultural interests of the people using the Horticulturist as the organ of all these interests and these lectures as an aid in the educational work.

Our Paris meeting was not large. We

had meetings without number to contend with and perhaps the advertising was not as judicious as might have been. We visited many very beautiful grounds in the town and few towns have so many, and I secured a number of views from Capt. Cox which I send you. I am not sure you can use them, but I send them with the chance that you can. If not send them back to the Capt. who is Postmaster of Paris. He will of course give you all information if you could give the grounds a notice. They are quite extensive and take the time of a man during the season.

I have been endeavoring to reach the local papers this trip with what result I scarcely know as they have failed to forward anything to me, except the Galt paper which I forward to you. Miss Rose is doing excellent work. The Galt paper report does not do her justice. Her object is rather to stimulate a love for gardening than to go into detail. She gives an excellent address to the children, taking up the distribution of seeds in a familiar way. Her platform presence is very effective, combining dignity and geniality in manner with freedom of expression and happy turns of thought, so that she never fails to secure the respect and attention of her audience, young and old.

We so often interfere with church meeting that I think it would be well to make a special effort in the future to secure the co-operation of the churches. In the smaller places the church meetings occupy a very large portion of the spare time of the very people we wish to reach. A minstrel show or a comic opera does not draw heavily on this class, but we do. Two or three nights in the week the people we want are at "Young People's Meetings" "Missionary Meetings" "Prayer Meeting," etc. Clearly one or the other must give way. We endeavor to place our meetings on as high a moral plane as the church meetings, and

if the local societies will choose their officers (and in all cases, as far as I know they have done so,) from those who will work in harmony with the churches, I see no reason why we should not ask the churches to postpone their meetings in favor of ours, as ours cannot be postponed. We discussed this matter at Mitchell where we had seven ministers, and the consensus of opinion was that such a plan was feasible. There need of course be no official recognition of the churches, as the whole thing would be a matter of courtesy arranged between the officers of each society, locally. I am visiting as many of the local gardens and grounds as I can. I believe the delegate would greatly increase the popularity and usefulness of the lecture course if he were able and willing to place himself in the hands of a local committee who could take him to the grounds already planted, and point out there, to those who wished it, the merits and defects (he had better confine himself to the former,) of the planting, or go to new places and make suggestions as to the arrangement and selection of trees, shrubs, vines and plants, flower plots, etc., on the ground. He could use these very effectively, as I know from experience, in his evening talk, and at the same time greatly relieve people who are willing to spend money on their places but don't know how to do it with advantage.

I purpose to write later to Mr. Creelman on these points. We are having a very busy trip. I am scarcely an hour between breakfast and midnight that I am not either with the local officers or on the train.

Perhaps some of the subjects I have touched this morning may be profitably commented upon in the Horticulturist. If you think so, why, of course, use anything you can, and I will be glad to develop the points further if you will indicate the line.

Yours very truly,

Seaforth, April 17, 1901. A. McNEILL.



FIG. 2046. ARBORETUM AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

CENTRAL EXPERIMENTAL FARM NOTES—XVI.

FEW persons, probably, were sorry when winter was over this year. Snow fell on the 14th November and covered the ground until the second week of April, making nearly five months during which the soil was not seen. Furthermore, during that long period there was no thaw of any consequence and at times there were long continued spells of quite cold weather, so that when at last the snow disappeared, spring was welcomed more than it has been for many years at Ottawa. During the latter half of March the snow melted steadily, but slowly, as the weather was not warm, and it was unusually cloudy from March 21st until April 10th, there being little sunshine recorded between

these dates. The snow began to go faster after April 1st, as the weather was milder, and there was much rain. On April 10th, when the weather again became bright, all the snow was gone except in the drifts. As there was practically no frost in the ground last winter, the soil could be dug at any time, and as soon as the snow was gone outside work was begun, so that in this respect the spring was more than a week earlier than last year, as the frost was not out of the soil enough to use the spade until April 19th in 1900. The first ploughing was done this year on April 12th. Up to the present time the indications are that most things wintered better than usual. Both large and small fruits are looking well

as are also the ornamental trees and shrubs, with the exception of the Junipers and Retinosporas, the foliage of which was injured considerably.

An unusual injury occurred in the nursery among the young apple trees, as the bark of many of them was badly split within a foot of the ground. The trees grew until very late last autumn and the snow fell early on the unfrozen ground when the young trees were well charged with sap. The cause of the splitting was probably due to the fact that the snow prevented the frost from reaching the lower part of the trunk until very cold weather came and then the severe frost caused the bark to burst.

The trees sprayed with the lime mixture last autumn for the Oyster-shell Bark Louse are already looking much brighter than those not sprayed and large numbers of scales have dropped from the trees and the remaining ones appear quite loose and will doubtless be washed off by rain within a few days.

The clover in the orchards which came through the winter in good condition is already beginning to grow. In one part of the orchard it has already been ploughed under and the land will be re-seeded with it later on. It is the intention again this year, as during the past three years, instead of ploughing under the clover and cultivating the soil, to cut it from time to time during the summer and leave it on the ground.

This system, however, is not recommended where the soil becomes dry and where the trees are liable to suffer from drought.

Visitors to the Central Experimental Farm are often surprised at the number and variety of the trees and shrubs used for hedge purposes, and they manifest much interest in them by asking questions regarding the the best varieties to plant and the methods of growing them. Examples of one hundred species and varieties are now growing

side by side in hedges fifty feet in length and ten feet apart, which present a fine appearance in summer when in full leaf.

The methods to be adopted in growing a hedge successfully are simple, but should be followed if a compact and regular hedge is to be obtained. The young trees or shrubs should be planted in good soil, and if it is not good it should be removed and better earth brought in its place. Young stock from one to two feet in height, should be planted and all cut back to an even height of from twelve to fifteen inches. Evergreens should be procured as compact as possible at the base, for if they are loose and the foliage wanting, it takes them a long time to thicken. The roots should not become dry from the time the shrubs are dug until they are replanted in the hedge-row. Planting is done by opening a trench about a foot wide and placing the hedge plants fifteen to eighteen inches apart in a single row. The trench should be filled with good soil pressed firmly against the roots. Afterwards the surface soil should be kept loose for about two feet on each side of the hedge throughout the summer, and every following season. If the trees and shrubs are cut back when planted they will need no further clipping the first season, but, after that, hedges of most deciduous trees and shrubs require to be clipped twice a year, in the latter part of June and again in August. Regular pruning from the beginning is very essential to successful hedge growing.

The following trees and shrubs, after several years' test, have proven among the most satisfactory for hedge purposes of all those yet tested at the Central Experimental Farm:

Ligustrum Amurense (Amur privet).—This is the only privet yet tested at Ottawa which has proven perfectly hardy. As the privet is very largely used in Great Britain for hedge purposes, it will be especially wel-

comed by English people settling in Canada. It is a pretty shrub with dark green leaves and forms a very compact hedge.

Rhamnus Frangula (Alder buckthorn)—A rapid growing shrub which makes a firm, compact hedge. Its glossy green leaves make it quite ornamental, and where a tall growing deciduous hedge is desired this is one of the best. The flowering period of this shrub extends over a period of five or six weeks, and during that time it is a favorite haunt of the honey-bee.

The Cathartic Buckthorn (*Rhamnus catharticus*), is also good.

Thuya occidentalis (American Arbor-vitæ)—This is the most satisfactory evergreen tested here for hedge purposes. It is a native tree and quite common in many parts of Canada, growing in a great variety of soils which renders it very suitable for a hedge. Its neat, compact appearance and bright green leaves make it very ornamental in summer, while in winter, although the leaves are duller, it yet remains quite attractive. In 1888 and 1889 more than one mile of this tree was planted at the Central Experimental Farm as a hedge, which is now

very compact and about six feet in height. The American Arbor-vitæ requires only one clipping each year, which is best done in August.


Thuya Occidentalis aurea Douglasii (Douglas' Golden Arbor-vitæ)—This beautiful golden-leaved evergreen is highly recommended for those who desire a golden tinted species for hedge purposes. It has formed one of the most beautiful hedges tested here, being of a bright yellow color, which makes a fine contrast with the green of other hedges.

Picea pungens glauca (Rocky Mountain blue spruce)—The blue spruce makes one of the most beautiful evergreen hedges. Its color is pale, steely blue, which produces a fine contrast with a green lawn. It is a slow growing tree and makes a very neat, compact hedge, requiring little clipping. As this tree varies in color from green to blue, in procuring hedge plants the blue variety should be ordered.

W. T. MACOUN, Horticulturist.

Central Experimental Farm,
Ottawa.

PREPARING FRUIT FOR COLD STORAGE.

T the recent meeting of the Eastern New York Fruit Growers' Society, Mr. W. H. Hart of Poughkeepsie read a paper on "Growing and Preparing Fruit for Cold-Storage." Among other things, he said :

The middleman for most fruit growers is a necessity ; the difficulty of distribution is so great that we give our produce over to him. Cold-storage has become a middleman, for it enables you to sell perishable products, which before were sacrificed in a glutted market, at an even price throughout the year ; and it greatly increases consumption and enlarges the market. Refrigerator

cars are equally useful in extending and increasing our markets for all farm products.

Some varieties of apples, otherwise good keepers, are apt to scald in cold-storage. York Imperial, Peck's Pleasant, Grime's Golden and Greening are all apt to scald. This tendency may be largely abated by care in spraying and fertilization. Insect attacks hasten ripening, and fungous growths impair the skin of apples. The natural oil of the skin, which should be abundant, is much increased by the fungicide, which insures health to leaf and fruit, and by chemical fertilizers and their delivery to the tree by cultivation. An

unsprayed Greening, grown without care on an exhausted soil, will scald months before a sprayed, well fed one, put into storage under exactly the same conditions.

For the great winter market, plant only leading market sorts especially suited to cold storage, such as Baldwin, Greening, Spy, King and Sutton. If properly grown, I do not assort my fruit for storage, merely requiring that it be handled gently in gathering, defective fruit dropped to the ground and apples slid from picking-basket into crate, where it remains until assorted for market. The bruising avoided by this

minimum of handling adds much to long keeping and saves expense. All care possible should be taken to keep fruit cool after gathering and in transit to cold storage. Keeping quality is frequently impaired by overheating in railroad cars or in heaps in orchard or barn. A few hours of excessive heat before storing will cause fruit to scald or decay in midwinter. Give such care in growing and preparing fruit for storage or market as will insure a uniform product of high excellence. There is no time when there is not a paying demand for the best fruit.

AGARICACEAE.

I AM much obliged to Mr. Dearness for his valuable article on the distribution of agarics. I trust that he will write again and that others may be induced to follow his example. I would also suggest that if he knows of any reliable data or records respecting the mushrooms, edible and poisonous, to be found in Canada he will give this information to the readers of the Horticulturist.

Respecting the *Agaricus gambosus* or *Tricholoma gambosum*, Fr., Mr. Dearness gives me the credit of being the first to report it in Canada and suggests its having been imported "amongst the roots of shrubs or plants from Europe." It is quite possible that this may be the correct explanation. The main college building known as "Trafalgar Castle" contains a large amount of oak imported direct from England. The grass seed sown upon the lawn, and some of the shrubs found in the grounds were also imported from England. It will be interesting in this connection to note a striking instance of the transportation of mushrooms that have been found in the lawn, adjoining the college ground, formerly owned by Mr. Jas. Holden, the President of the Whitby,

Port Perry and Lindsay Railway. In this lawn are to be found morels, the only ones found in this vicinity though they are quite abundant to the north. On enquiry have learned that the lawn was at one time quite low and damp in some places and that Mr. Holden brought down from the north several car loads of earth to improve his lawn and brought with it no doubt the mycelium of the morel.

Mr. Dearness refers to the disagreeable odor of the *T. gambosum* of England as reported by Dr. Cooke. The species found in the college grounds had a decided fungus odor, though not a "heavy, disagreeable odor." For some time I was in doubt as to its being the real *gambosum*, and referred to Dr. Colville, of the United States Dept. of Agriculture, who seemed to think that it was. There must be considerable difference in the matter of odor. Dr. McIlvaine in his recent work states that *T. gambosum* is found in Chester and Lebanon county, Pa., also around Philadelphia, etc., and that its "odor is pleasant like that of a new meal."

Have been rather surprised to learn that any harmful results have come from eating *Lepiota Naucinoides*. This mushroom is

FIG. 2047. *COPRINUS COMATUS*.

quite plentiful in this region and is much enjoyed. Last fall I received a basket of these mushrooms, but amongst them were some specimens of *Entoloma graveolens*. The entolomas are known to cause nausea and vomiting. I mention this as a possible explanation. Perhaps a species of *Entoloma* was inadvertently gathered with the *Lepiota*, and thus the unfavorable result was produced.

Coprinus Comatus Pers. The shaggy-maned mushroom. The name "comatus" "shaggy" has come from the shaggy points or lacerated scales to be found on the surface of the cap. In general shape it has been compared to a goose egg or a closed umbrella. I am indebted to my friend, Dr. Purslow, of Port Hope, for the photograph

from which the accompanying cut No. 2047 has been prepared. He took it from an illustration found in Dr. Taylor's work on mushrooms. The Doctor reports that this mushroom is found abundantly in the neighborhood of Port Hope. It is found also in and around Whitby. It is so easily identified, and is so valuable as an article of diet, that I bespeak for it an enthusiastic reception.

In young specimens, the cap, gills and stem are creamy white, except the apex of the cap, which is frequently brownish. As the mushroom advances in age the margin of the cap turns black, and then begins to melt away into an inky black fluid. The gills are equal in length and crowded, at first creamy white then in succession pink, brown and black, finally dissolving like the cap. During the early stages when the gills are white and pink, and when the juice is either colorless or wine colored this mushroom is edible. When it turns black and begins to liquefy it is sometimes used for catsup.

This mushroom is found in rich grounds well supplied with decomposing vegetable matter. Cook in butter with pepper and salt.

Coprinus atramentarius, Fr., the Inky mushroom, and *Coprinus micaceous*, Fr., the Glistening mushroom, are species closely related to the preceding. They are both characterized by the inky deliquescence. They are so common in barnyards, or around old decayed stumps, that I presume that almost every reader of the *Horticulturist* is familiar with them. Often when a boy I jumped upon them, thinking that their inky appearance was a sure sign of their poisonous character. Like the preceding they are quite palatable when young, and may be made into catsup when turning black.

J. J. HARE.

Ontario Ladies' College.
Whitby, Ont.

BIRDS IN THE ORCHARD.

WE occasionally come across a man who is opposed to spraying, considering it an altogether too laborious and useless work. Such a man cited to me an orchard where its apples were unexcelled in freedom from worms and the orchard equally so in immunity from caterpillars.

Now this seemed pretty strongly to confirm his anti-spraying views. Thinking that there was some cause for this high state of excellence where no spraying was in vogue, I had an interview with the owner in regard to this matter and was told that the only cause he could assign to it was the work of birds, for during last spring and summer myriads of birds were busily engaged in the orchard. In the vicinity of the orchard was a grove of evergreens, through which ran a stream of water. Amid these trees numerous nests were to be found. To show that these very birds had a powerful influence in ridding the orchard of pests, we will cite a few facts issued by the New York Department of Agriculture. The United States authorities at Washington have been dissecting some thousands of birds and have made records of the contents of the stomachs of each bird.

We will now name a few birds and show the contents of stomach. The winter food of chickadees was found to be largely eggs of canker worms, each stomach on being examined contained 300 to 450 eggs of the canker worm.

Ninety-nine per cent. of the stomach contents of thirty meadow larks was caterpillars, grasshoppers and beetles.

In 46 black-billed cuckoos there were found 906 caterpillars, 44 beetles, 96 grasshoppers, 100 sandflies, 15 spiders.

In 109 yellow-billed cuckoos there were found 1,865 caterpillars, 242 grasshoppers,

69 bugs, 6 flies and 86 spiders ; surely there was but very little room for fruit. In one stomach alone there were 250 tent caterpillars. From two-thirds to three-quarters of the food of the woodpecker consists of insects.

In two flickers, 3,000 ants were found in each stomach.

It has been stated that the king bird is destructive to bees, but the following will discredit this assertion. Out of 281 king birds there was only 14 stomachs which had bees and 90 per cent. of its food was found to be insects. The blue jay eats many noxious insects, also the crow, barn swallow, and our old familiar friend the robin.

I have noticed in our own orchard that the woodpecker seemed quite at home around peach trees, digging for all they were worth for the peach borer.

We might relate many more examples in these researches, but surely enough has been said to show that birds are no small factor in this matter of ridding our orchards of insects. Acts of legislation have been passed forbidding the slaughtering of many birds, and now each of us, as individuals, should take an interest in rearing and protecting the beautiful feathered fruit protectors, and and only be too happy to allow them the very meagre allowance of fruit which they eat, and which is indeed very small in comparison to the insects which they devour.

Birds need the protection of dense trees, quiet resting places in which to hatch their eggs and care for their young ; evergreens are a favorable resort for many birds. Birds are much like other animals, they can become to a certain extent domesticated, and live around the same places as well as any domestic fowl.

Prof. D. Lange, in his book, "Our Native Birds ; how to protect and how to

attract them," gives a case where a lady in Vermont has made a specialty of attracting birds to her gardens and orchards, and she has succeeded admirably well. She says, "After once learning to take food provided for them the birds will come anywhere for it, to windows on upper stories or windows under deep piazzas. Her main reliance in winter seems to have been bones, with bits of meat and marrow remaining upon them,

which were nailed or tied into trees to be pecked at. Chickadees, woodpeckers, and many others go to them immediately."

A great number of us might imitate or improve on this, and entice many birds to our surroundings. If we cannot do this we can at least stop the small boy with his stones and sticks, and his robbing-nest tendency, also the big boy with his gun.

Grimsby.

J. F. BRENNAN.

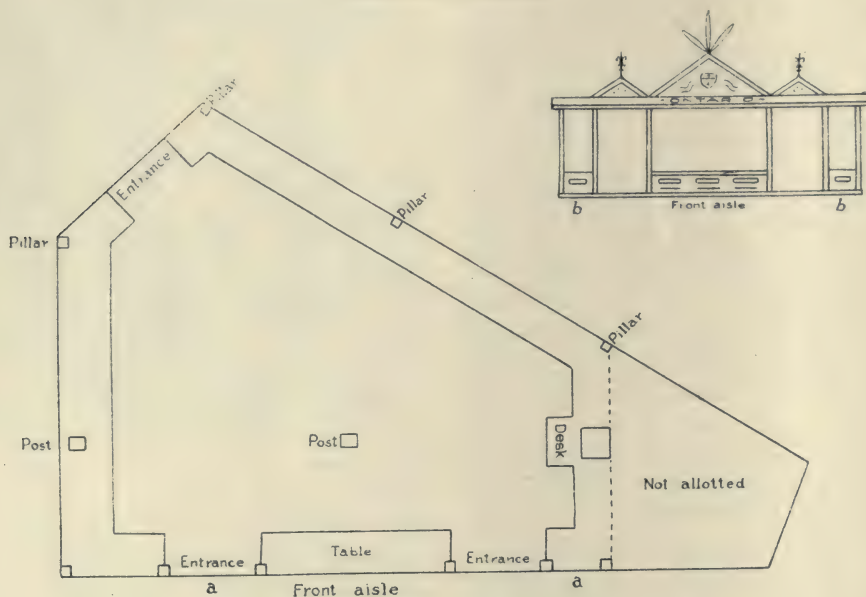


FIG. 2048.

THE PAN AMERICAN EXHIBITION.

EARLY in April the writer visited Buffalo for the purpose of aiding in securing an appropriate installation for our Canadian fruits. The writer's experience as Superintendent of the Dominion exhibit at Chicago in 1893, suggested some pointers in this matter which seemed of possible benefit to our work. To our great satisfaction, and that of all fruit growers in Ontario, we found in Mr. W. H. Bunting, the Superintendent for Ontario, an energetic, wide awake gentleman, with ex-

cellent original ideas, and withal quite ready to profit by any useful suggestions.

The space secured for Ontario fruits is only about 1100 square feet, but it is splendidly situated along one of principal aisles, where it will show off to splendid advantage. The accompanying plan of the floor space will give our readers an idea of the shape, and of the tables which will be arranged along the margin; *a, a*, shows the principal entrance, along which it is proposed to arrange an arch, with the word Ontario prom-


inent, and adorned with the coat-of-arms of the province, as shown at *b, b*. In the interior of the space Mr. Bunting proposes to erect a trophy which will be a centre of attraction, surmounted by flags, and laden with bottled fruit, plants and other objects of interest.

Now upon the directors of our Association and the officials of our affiliated Horticultural Societies and other members, to a large extent depends the success of this work. Every Horticultural Society should make up a special exhibit to be shown under its own name, and secure a diploma and a medal. This is quite within the reach of every one of our Societies, for the awards

are not competitive as in the case of smaller fairs, but instead, an award is to be given for each exhibit that is up to a certain standard of merit.

We would advise all our Societies to place themselves in correspondence with Mr. W. H. Bunting, St. Catharines, the Superintendent of Horticulture, and give him notice of the kind and quality of the exhibit they propose to make, and the probable date of shipment. The same precaution should be taken by all our directors and experimenters, for the greater the number of different awards to Societies and individuals gained for Ontario the greater the sum of the honors for our province.

A HINT ON PREPARING BORDEAUX MIXTURE.

OMPLAINTS are frequently heard of the lack of results from the use of Bordeaux mixture.

One man stated at a Farmers' Institute meeting last winter that he had used it for apple scab for four years without results, and was ready to sell his outfit. His orchard was no freer from scab than his neighbors' orchards which were unsprayed. This is only one case out of many met with.

On enquiring closely into the way the work was done to discover a probable cause of failure it was found, in almost every instance, that it was due to the improper method of compounding the Bordeaux mixture.

Many people dissolve the copper sulphate, slack the lime, pour them into the barrel and then drive to the pump, fill the barrel with water and imagine they have Bordeaux mixture, but they are mistaken. The solutions of copper sulphate and lime being brought together without being sufficiently diluted with water have caused a chemical reaction which has entirely changed the composition of the mixture.

The original substances were soluble in

water and beneficial, the resulting substances were insoluble in water and useless for the purpose.

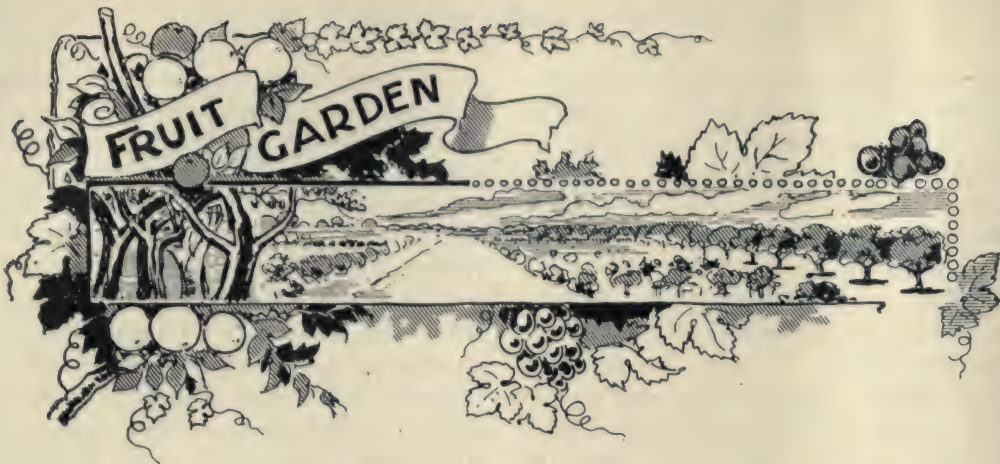
Where spraying is done in a small way the mixture is usually prepared as needed. The copper sulphate is dissolved in hot water and of course the newly slacked lime is also hot. As heat hastens chemical action the change in this case would be very rapid. Bordeaux mixture made in this way has a "curdy" appearance as if filled with small insoluble particles.

The man referred to above as having sprayed without results, said that sometimes his mixture was so "curdy" that he could scarcely get the pump to work.

To make Bordeaux mixture properly the solutions should be cool and the barrel almost filled with water before they are brought together. When properly prepared it should have a smooth creamy appearance. Bordeaux mixture made in this way and properly applied at the right season will not fail to give satisfactory results.

J. E. ORR.

Fruitland, April 20th, 1901.



SEASONABLE HINTS.

PLANTING trees usually belongs to the month of April, but frequently this work is unfinished until late in May, owing either to the late arrival of the trees, or to the condition of the soil. It is important that the soil should be in good condition, both for the soil texture itself and for the effect upon the tree. Nothing is more difficult to overcome than a stunted condition, and therefore favorable conditions should always be provided.

At our Brantford meeting the question of pruning or not pruning at time of planting was hotly discussed, some maintaining that it was best not to cut back young trees at that time. Some experiments were made last year at Woburn, England, with several varieties of apple trees, both dwarf and standard, involving questions of pruning, root treatment, manuring and planting. These experiments were slightly in favor of immediate cutting back on setting out, rather than waiting until a year later.

"Root pruning trees has resulted in checking both vigor and growth. Trees not pruned every year were in 1898 but little more than half as large as normal trees, and those pruned every other year only about three-quarters as large. The crops borne by these trees, however, were heavy in proportion to their size. Trees carefully

lifted every year and replanted at once suffered no injury thereby, but when left three days before planting, in imitation of commercial nursery methods, material injury resulted, amounting four years after the transplanting to a loss of 28 per cent. in size. The effect of growing grass about trees was most striking.

"The grass-grown trees are, after five years, scarcely bigger than when planted, and the actual increase in weight which they show during this time is about 18 times smaller than in the case of similar trees in tilled ground. The effect of weeds has been distinctly less than that of grass, and that of careless planting, combined with weeds and total neglect, is scarcely greater. The grassed or weed-grown area, in the majority of cases extended to about six feet beyond the stems of the trees, but in the case of two of the varieties of standards the extent was only three feet, and in these instances recovery began in 1897 and now appears to be complete, so far as the vigor of the trees are concerned, although they have not made up for the loss in growth experienced before 1897. In the case of the other trees, where the ground is more efficiently grassed over, there seems to be some signs that recovery is now beginning. With those trees which have been recovering since 1897 the ma-

jority of their roots are still within the grassed area, and it seems impossible, therefore, to attribute the effects of the grass to a competition of food between the roots of the grass and those of the tree. We believe one of the main causes of the effects to be due to the large increase in the evaporation from the soil which is known to be produced by grass, the trees being thereby made to suffer from drought, with consequent deprivation of other nourishment as well; but we have reason to consider that the grass acts also, by preventing the access of air to the roots of the trees. Further experiments have been undertaken to elucidate this action more fully."

Top Grafting bearing apple and pear trees is a far simpler job than most fruit growers imagine. A skillful hand with a sharp knife and a fine toothed saw, a ball of wax and some scions, can transform a worthless orchard to one of great value. Why grow a dozen kinds of winter apples, giving a mixed

car load that is hard to sell, when a few days work would result in an orchard of straight Spy, Ontario, York Imperial, Gravenstein or some other one of the best varieties, and



FIG. 2049.



FIG. 2050.

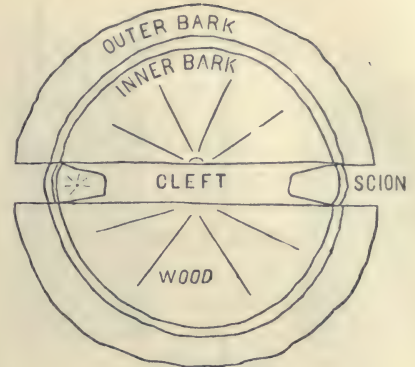


FIG. 1.

FIG. 2051.

The scions should be cut in advance when perfectly dormant, and if this precaution is observed, the tree to be grafted may be even coming out into leaf and yet the work be a success. It is important to learn to make a uniform slope in wedging the scion, and at such an angle as will fit the split. For this a sharp knife and a little practice is necessary. Fig. 2051 shows how important it is that the inner bark of stock and scion should meet and thus grow together, for here the vital union takes place. When fitted, the wedge holding the split open is removed and the scion will be held fast in place.

The grafting wax should be applied as shown in 2049. The following is one of many recipes for making grafting wax: Resin, 4 parts by weight; beeswax, 2 parts; tallow, 1 part. Melt together and pour into a pail of cold water. Then grease the hands and pull until it is nearly white.

Spraying — Much as our experiment stations have done for us in this particular line, there is yet room for considerable work on their part. Sometimes it gives marked results, and then again, the fruit grower almost concludes it has been a complete failure and a great loss of time and money. What we growers want to know are just the exact conditions that give certain results? Just now, before the buds open, we are instructed to spray our apple, pear and plum trees with

enable you to export whole car loads of a single first-class sort at top prices.

Cut 2050 clearly shows the method of cleft grafting without further description.

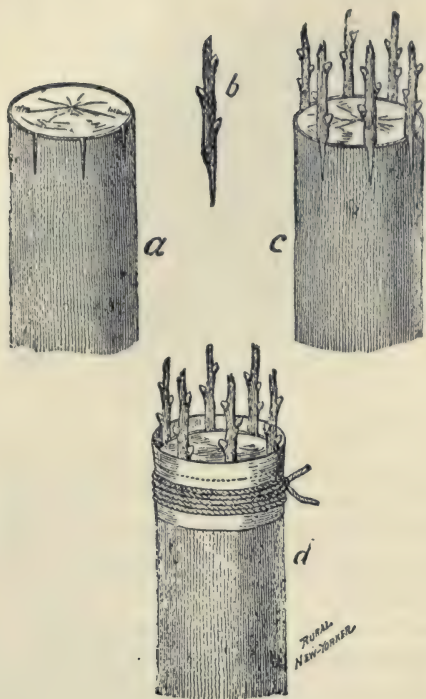


FIG. 2052.

copper sulphate, one pound to twenty-five gallons of water to destroy the germs of scab and rot. Some growers prefer to use the Bordeaux even for this first application, because it does not wash off so quickly as the copper sulphate solution.

One thing is sure, that the man who treats his trees thoroughly succeeds. J. W. Brennan, with fifteen acres of orchard, does his work thoroughly, and such Spys we never saw. Scarcely a worm, no scab, magnificent fruit—some of which has gone forward to the Paris and the Buffalo exposition and the rest was sold in Ottawa at top prices. Some of those Spys brought in our home markets over \$1 a bushel last autumn. But when one has one hundred acres to spray several times thoroughly, he is apt to shirk his job.

Some of our Horticultural Societies have struck a splendid plan. The society purchases a large pump, which is worked by a gasoline engine, a man is employed to run it,

and each pays into the funds so many cents per tree for having them treated. Some such co-operative plan would be a grand solution of this question, for the job is nasty, and most would rather pay than spray.

Crown Grafting.—In the case of large trees, where the ordinary cleft grafting seems unsuitable, some have successfully tried crown grafting, as shown in the accompanying illustration. The branch is sawn square off as shown at (a). The wood is not split, but clean slits are made down the bark as if for budding, and in these the scion (b) is inserted, one in each slit, as shown at (c). Grafting wax is not needed, but a band of thick paper is wound about the graft, leaving it to project about an inch above the wood, as shown in (d). It is then secured with a strong twine, and the cup so formed is filled with mud, which protects the cut until it is partially healed. This method of grafting is very simple, and usually succeeds.

Grapes.—The tying should be completed at once, if not already done, and the vineyard cleaned up for cultivation.

Grape thinning is somewhat practiced in England for such kinds as Lady Downes, Gros Colmar, etc., but we question if it would pay us in our vineyards. The work is done there when the fruit is about the size of No. 1 shot, and when done a bunch of grapes should have even sized berries that will form a compact cluster, close enough to retain its form when cut and laid on the dish or stand. If they fall about and show the stalk it is overthinned; if they force each other out of place it is underthinned. They always begin at the point and work upwards, steadying the bunch with a small peg or stick, removing the smallest and plenty of the inside berries first.

For a gentleman's garden no doubt this would be practicable, but scarcely in a commercial vineyard.

NOTES ON VARIETIES OF STRAWBERRIES IN 1900.

THE season was so unusually dry, even for this northern district, that only plantations under superior cultivation offered a fair test of their capabilities. Hence varieties commonly accounted only worthy of the "matted row" system of cultivation did not show up so well in comparison with others as they do in moist seasons. Certainly the relative value of a variety seems to vary with the season as well as the soil. Nevertheless we got a very interesting test of a number of varieties, as the crop did not wilt and wither off, as reported in some districts further south.

I have tried to arrange the order of the notes following according to the prominence of the varieties before the public as well as to my estimate of their value.

CLYDE.—Probably the most valuable for a not too distant market of all recent introductions. It is not as firm as Wilson but seems to stand up better than Crescent; not good enough in quality for home use, but quite so to take the market and be asked for again; rather too light colored in the matted row system, especially in a moist season, but very beautiful as grown in the narrow row and in ordinary seasons. Its strong points are its size (large to very large), smoothness and regularity as if run in a mould, and extraordinary productiveness. Plant it on rich clay loam if possible. Indeed I have seen it fruiting wonderfully with a neighbor on rather poor clay soil baked "hard as a brick." On sandy soil it is apt to falter and fall down under its load of fruit unless well stimulated with manure.

WM. BELT.—This is the most remarkable berry I have ever seen—for some purposes and under certain conditions. Of the Sharpless type in both plant and berry, but under fair (not extra) culture it is perhaps three to

four times as productive. Probably it would not prove at all a success grown by the slipshod method. Moreover it is not at all the berry for sandy land. Even with plenty of manure it is hard to keep the foliage from rusting on light dry soils. But on moist fair clay loams, grown in rather narrow rows, with most of the runners cut, it is simply a marvel. On such soil, far from rich, I gathered thirteen berries that filled a quart basket heaping full—my neighbor, Mr. Newman, being witness—and the foliage was green and healthy in spite of the drought, and the plants immense. Best of all, the quality was sweet and rich—next to Marshall, the prince of strawberry flavor. Not only are the berries very large and delicious but they are also rather firm, glossy, and of beautiful color. The first berry in a cluster is generally rather coxcombed in shape, but never rigid and ugly—all the others are generally of rather uniform shape. Of course the crop is not equal in quantity to the Clyde, and probably a smaller, firmer and more acid berry might be preferred by some for preserving; but for growing in quantity for a fancy market, or to delight the family and amaze the neighbors, I know of nothing to beat the William Belt.

MARSHALL.—This is the great show berry. If anything can excel the Sharpless and Wm. Belt in size it is this. In quality and firmness it is superior also, and even more glossy and of richer color. A good bearer, but not so productive as Wm. Belt—say about double as productive as Sharpless. The plant is about as large as Wm. Belt, and with me, on moist clay loam, the foliage seems even more healthy and handsome. But it is yet more impatient of light soil. On poor sandy soil I found it a dismal failure, but on good dark land it stands at the head of the class for size, beauty and quality.

SPLENDID.—The best general-purpose berry I have well tested. Not best in any one particular (except healthfulness) or for any one purpose, yet if I could only have one variety for all soils and purposes it would be this for its high general average: smooth, regular, handsome, of good size, of excellent quality, quite firm, with a crop close up to Wilson or Crescent in quantity, growing on good strong plants with handsome glossy foliage, as if varnished, that stands up and does its best in any season on all soils, it is indeed Splendid.

NICK OHMER—of the Marshall and Wm. Belt type—is scarcely as large or delicious as the Belt but firmer, more regular in shape and perhaps more productive. I think the foliage is healthier than that of either Marshall or Belt, and I would sooner plant it on light land. I consider it a valuable variety.

SAMPLE (P.)—This is the first variety in these notes which is deficient in pollen, so that it will not bear well without some variety near it with perfect blossoms. Otherwise it is a fine variety—strong, healthy, a good runner and a great bearer, fruit very large, roundish-conical, firm, deep colored, handsome, and of good average quality. It is not so particular about soil and keeping runners cut as so many of the other big fellows. I have only fruited it once but it appears quite promising.

GLADSTONE.—I just mention this here to sound a note of warning. I am not prepared to call it a fraud without further test. Possibly the nurseryman who sent it may have made a mistake, so I am trying it on plants from another firm. But as I have it so far it appears exactly identical with Sharpless. I notice, too, that some American growers are beginning to say the same thing. Every now and then some old variety gets a new label and goes out to astonish and disquiet enterprising fruit growers. What a pity the fellow who does it can't be labelled!

RIDGEWAY.—A fine early berry, large, handsome, firm, good to eat, glowing-like flame—a good cropper, but does not send out many runners; fruited on full grown plants only once here but quite promising.

WILSON—On “improved pedigree stock” from Michigan, this grand old market variety seems as good as ever, but we want something better.

CARRIE (P.)—Claimed to be an improvement on its parent the Haverland. I cannot see much difference, but the Haverland is a fine variety lacking only firmness and better quality to stand near the head of the list.

TENNESSEE PROLIFIC—Of the tough sturdy, very productive Crescent type, but larger than Crescent, firmer, not so insipid, and with a perfect blossom. Having fruited it only once I am not positive yet as to whether it comes up to the Crescent in productiveness, but it is evidently a good cropper. A leading grower in the Niagara District declared it superior to Clyde one season, and the next year, after fruiting, he said he thought it about equal. It is evidently a valuable market variety. The foliage is bright and glossy, and it does well with me on both light and heavy soils.

MORGAN (Morgan's Favorite)—Fruited just once, but evidently of great excellence. Imagine a Wm. Belt that will keep healthy and bear abundantly on bright soil, and you have a picture of the Morgan as it behaved with me last summer. On a yellow sandy knoll, without manure, the plants were magnificent in size, and the fruit large to very large, beautiful, firm, abundant and delicious.

MAGOON—Side by side with Morgan this variety was nearly or quite equal in every particular except that the fruit seemed scarcely so smooth, firm and sweet, while it was decidedly later in season.

DOWNING'S BRIDE, STAR, FOUNTAIN, are varieties that must be tested on better soil

before I can recommend them. Side by side with Morgan and Magoon on the sandy knoll they were comparatively worthless.

CRESCENT and BEDER WOOD on the sandy knoll stood well up to their old reputation. Crescent, especially, grown from selected pedigree stock offered by a strawberry specialist in Michigan was just as productive as we used to know it fifteen years ago—large, too, for the season. Beder Wood of course rusted, as it always does, but it bore well and early too.

EXCELSIOR.—This is the first early variety they make such a fuss about in the States. Well it is early no doubt—the earliest of all I have seen—and it is smooth, glossy, dark red and very firm. But oh it is so sour! After one year's test I must not talk as if I know all about it, but it must bear a larger crop and stand up a little freer from rust before I can praise it. Yet its great earliness and firmness make it promising for market.

MICHEL'S EARLY—Nearly as early as Excelsior, and much sweeter—is a better variety for home use, but it is quite soft for a market berry, and if allowed to make runners without restraint it will be unproductive. Checked a little in running I have had it bear well.

JOHNSON'S EARLY—I find more promising than Excelsior—very early, large and firm enough, healthy, moderate in forming young plants, and quite productive even on light land, but rather acid. Only fruited once.

SAUNDERS, WOOLVERTON, WILLIAMS—All fine, large, well-known varieties of Canadian origin, of which the last seems to be the most profitable for market.

BRANDYWINE—A good late variety, about the size of the three last mentioned—fine for late market.

GANDY—The latest of all yet tested, large, very beautiful and delicious, but unproductive on sandy land.

RUBY—One of the most beautiful and delicious, large and firm, but only moderately productive.

GLEN MARY (P.)—Late, very large, quite productive, but rather soft and sour, and a poor grower except on rich land.

BISMARCK—Large, handsome, of ordinary quality and moderate productiveness.

PARKER EARLE—Immensely productive on moist rich land and in a wet season. In ordinary seasons, with common treatment, it will not ripen half its fruit, so I am afraid it has got to be turned down,—which is a pity considering the size and beauty of the fruit and the greatness of its attempts.

PARKER EARLE IMPROVED (Arnout's)—Just a chip off the old block.

PARKER EARLE JUNIOR—Hardly even a chip, I think—seems quite worthless.

GREENVILLE (P.)—Large and productive, but had to be rejected for lack of health. The leaves would draw together, and upon examination were found to be affected with mildew.

WARFIELD (P.)—Immensely productive, and the glossiest and most handsome berry for its size of the whole lot, not very large, but large enough for market. But the fruit is of poor insipid quality, and in a wet season a good many of the blossoms would fail to pollinize properly, so that a large part of the crop would be gnarly and small. So when it developed the same fault of mildew on the leaves noted in the Greenville it had to go. The Senator Dunlop is said by Mr. Crawford to resemble it greatly in appearance and crop, but to be of delicious quality and of perfect blossom. The plants certainly grew well, and I look forward to fruiting it next summer with eager anticipations.

Kansas, New York, Bennett, Mrs. McDowall, Murray, Darling, Success, Parson's Beauty, Smith's Early, and especially Jos. H. Black's seedlings, viz., Joe, Nettie, Carrie

Silvers, Nina, Stella and Reba, have shown healthy, vigorous growth on my place, but have not fruited yet.

With all our improvements there is yet room for the perfect strawberry. When we reach a combination of productiveness and regularity of the Clyde, the vigor of the Sharpless, the size and quality of the Wm. Belt, the firmness of the Wilson or James Vick, and the wiry constitution of the Crescent, we may perhaps consider ourselves

near enough to the top of the ladder. Whether Providence has made the requisite arrangements for such a result in a world of imperfections may well be doubted, but certainly the process of reaching up for the best possible is delightful, and we must congratulate ourselves upon the improved varieties now to hand of "the best fruit God ever made on earth."

T. C. ROBINSON.

Owen Sound, Feb. 1901.

TREATING THE SAN JOSE SCALE.

Mr. G. E. Fisher, Burlington, the chief inspector, has addressed a carefully prepared circular to the fruit growers of Ontario, regarding the treatment of this scale, and we extract a few lines. Our readers may secure the whole circular on application to him.

The grower will find the best proofs of its identity in its being plentiful and widely distributed over the tree, in its being present in all stages of development at all times of the year and its very distinct nipple and ring. If left to itself the San Jose Scale will increase very rapidly indeed, but it may be controlled by remedies.

Whale oil soap applied $2\frac{1}{2}$ lbs. to the imperial gallon of water just before the buds open will check the scale severely, and has a splendid effect upon the trees in destroying fungus and stimulating growth, but if used before the frosts are over will kill the blossom buds of tender varieties. Soap offers so little resistance to re-attack and so many of the scales were left alive that before the end of the season the original condition of infestation was fully restored. There was very little spreading, however, where the soap was used at full strength and in sufficient quantity. Every part of the tree must be saturated. I have never seen a tree which had been injured by soap.

Crude petroleum is strong medicine, and must not be used in excess of what is necessary to penetrate encrustation. Every part of the tree must be reached, but no part sprayed a second time, nor must the spray be directed too long against the tree. Special attention should be given to the inside of the branches, the twigs and the deep cracks in the bark. Many trees have been killed by excessive applications and it is safer to use crude oil diluted to 25 per cent with water, which must be applied with an emulsion pump. The London Spray Motor combination is the only reliable pump I know for applying mechanical mixtures. No scale can live on an oil treated bark, and the oil not only

kills nearly all of the scales but protects the tree from reinfestation. Too much crude oil will kill trees and very little is necessary to kill the scale. If applied to peach trees the treatment should be very light, even and complete. Crude oil should be used thoroughly but sparingly just before the leaves appear, and costs about one-sixth the cost of soap. I have not seen apple, pear or hardy plum trees, which had been injured by crude petroleum.

Whale oil soap and crude petroleum may be combined in any proportion to suit tender trees.

Kerosene is not satisfactory except as a summer treatment in the proportion of 10 per cent with water for killing the young scales, and whale oil soap, one-half pound to the gallon, may be used for the same purpose. Neither of these summer sprays will penetrate the coverscale beyond the white stage, and to be effective must be repeated every ten days.

The remedial work done last year was not altogether successful, owing partly we think to the material used not being of first quality and partly to improper use of it. If there is one thing which above all others is worth doing well it is treating trees affected with the San Jose Scale.

The Minister of Agriculture for Ontario, recognizing that this work is still in the experimental stage, that it is urgent and that great difficulty in procuring suitable spraying material would be experienced, will again supply whale-oil soap and crude petroleum to those whose orchards are affected or exposed to infestation with the San Jose Scale, on the same terms as last year, that is one half of its cost laid down cash on delivery. The soap will be made from strictly high grade material and will probably cost a trifle more than that used last year. Having recently completed a tour of the oil fields and made many tests, I can now locate the most suitable crude petroleum for this purpose the Province affords.

The following are given in the same circular.

INSTRUCTIONS FOR SPRAYING.

1. Trees must be thoroughly pruned, and all rough bark and lichen removed.

2. Have a sufficient supply of material on hand and a proper pump for applying it.

3. Do not spray the trees when wet.

4. Thoroughness is imperative.

5. For early work, soap should be used in the proportion of $2\frac{1}{2}$ pounds to the gallon of water where the scale exists, and one pound to the gallon when operating only against fungus. It should be first dissolved in a separate vessel, then strained into the barrel of the pump, and is more effective when applied hot.

6. Any good force pump provided with an abundant supply of hose, an extension pipe and a suitable nozzle, will apply the soap.

7. Soap can be used most effectively during the time between the swelling of the buds and the opening of the blossoms; even if a few blossoms are open, no harm will ensue. An earlier application will destroy the fruit buds of tender trees. The tree should be sprayed until every part is saturated. The inside of the limbs, the twigs and crevices should have especial attention. $1\frac{1}{2}$ gallons

of the mixture is sufficient for a full grown peach tree.

8. If undiluted crude petroleum be used, the least possible quantity of oil that will cover every part of the tree should be applied with the very finest vermored nozzle. It is safer to use oil diluted to 25 to 30 per cent with water. The vermored nozzle, either coarse or fine to suit the work, is best. While every part of the tree must be reached, no part should be covered twice with oil. A reliable combination pump only should be used in applying mechanical mixtures.

9. Treat for Lecanium and Pear Psylla early in April. San Jose Scale and other purposes as late as possible before the buds open. First, apple, then pear, then the hardier varieties of plums, then the tender varieties, and last peach, allowing sufficient time to complete the work. Crude petroleum should not be used at all on the foliage.

10. For summer spraying, use kerosene, 10 per cent. with water on bright, airy days, which will promote evaporation, or whale-oil soap, one-half pound to the gallon of water, whenever practicable.

THE MOUNTAIN RARERIPE PEACH.



FIG. 2134. MOUNTAIN RARERIPE PEACH.

AMONG the multitude of peaches that have proved their value this year there are few of the white fleshed free stones that have equalled the Mountain Rarripe. It is comparatively a new peach and ripens in mid-season, just before and lapping onto Stump and Old-

mixon Free, which are of the same character; hence, it has close competition. In some of the leading orchards of Delaware, where it fruited in considerable quantities this year beside these old standards, it proved fully their equal and in some cases their superior.

The size is from medium to large and the shape round, with a very faint suture on one side. The color is white, beautifully shaded with carmine red. The flesh is very thick and firm enough to withstand shipment before the fruit is fully ripe, and very tender and juicy in the end. Its flavor is rarely equalled, being rich, yet mild, sub-acid, and very fragrant. The stone is not very large, has no bitter taste in the flesh about it and is very free. It is a good variety to go along with Elberta, which ripens at just the same time, and it deserves extensive trial where such a peach is wanted either for market or home use.

H. B. VAN DEMAN.



TIMELY TOPICS FOR THE AMATEUR—XV.

THERE is no season of the year that taxes more severely the energy and skill of those who take an interest in their gardens, than the month of May and the early part of June. Neglect or carelessness in garden operations at this season, is certain to be followed by disappointment and regret, later on.

Not only has the ordinary spring and early summer work of rolling lawns, cutting grass, getting the walks in trim, and other routine work to be attended to, but the vegetable and fruit garden also demand their share of attention.

The vegetable garden, more especially, must not be neglected. Unless successive and late crops of vegetables are sown or planted, there will be a dearth of vegetables during July and August, as well as a shortage of autumn and winter vegetables.

Always endeavor to sow and plant garden crops when the ground is sufficiently dry to work easily. Tramping about on the ground when in a wet and sodden condition, is detrimental to plant growth, more especially on stiff clayey soils. If planting is carried on in wet or showery weather, always loosen the soil up with a fork or hoe where it has been tramped about

on. A loose, friable surface soil is conducive to rapid growth, and much heavier crops will be secured than by allowing the soil to become hard and packed.

Another important point in garden work, is never to allow the roots of any tree or plant that is to be transplanted, to be exposed to the air any longer than is really necessary. If the roots cannot be covered with earth, cover them with damp straw, or a piece of matting, so as to exclude air from the roots. More plants and trees are lost by neglecting this important point than is generally supposed. Plants that can be kept from wilting for a few days after being transplanted, by judicious shading and watering, will well repay the extra care bestowed on them by responding with quick root action, and a vigorous, healthy top growth.

The transfer of tender flowering and foliage plants from the greenhouse, or perhaps from the hot-bed or window, to the changed conditions of out-door life, is a feature of spring work that is often very carelessly and thoughtlessly conducted. Tender exotic plants, such as coleus, cannas, caladium esculentum, etc., are often hurried out into the cold soil of bed or border, without any

attempt having been made to harden and prepare them for this sudden and decided change in their surroundings.

The result of this harsh and unnatural treatment is soon apparent. The plants soon lose the beautiful rich color and markings of their foliage, and unless the weather is very favorable it is possible that they may be entirely denuded of their foliage.

It is almost impossible to harden plants off successfully in a small greenhouse or conservatory where there is a mixed collection of plants. By keeping the ventilators open at night, or even late in the evening and not shading too heavily, much can be done in the way of hardening plants. But this plan is not advisable where there is even a small collection of plants such as exotic ferns, fancy caladiums, foliage begonias, etc., as these require shade and heat to bring them to perfection.

There is no better plan to harden plants intended for summer use out of doors, than standing them outside under the shade of trees, or standing them on a border or walk on the north side of a fence or buildings so that they are protected from the direct rays of the sun for a few hours at mid-day, and from cold biting winds and slight frosts. A week or ten days in this position will gradually harden the foliage of tender plants, and

avoid the anxiety and loss that is often caused by hurrying tender plants out direct from greenhouse or conservatory to exposed positions outside.

This hardening-off process will be found to be beneficial, not only to tender greenhouse plants, but also to plants raised in the window, or in any position where they have not been hitherto exposed to direct sun and air.

If dull warm weather could be depended on for a few days, when placing plants out doors, all trouble of hardening-off would be avoided. But it is seldom that much dull, cloudy weather is experienced toward the end of May or early in June, to favor us in this respect.

I have written these few remarks more as seasonable reminders than notes of instruction to readers of the journal. I know from experience that matters of this kind are oftentimes forgotten and lost sight of in our anxiety to have the flower-garden and lawn looking bright and gay as early in the season as possible. Recollections of past experience and failures too often occur to us, when the results of neglect and forgetfulness have become too apparent to allow of their being remedied very easily.

W. HUNT.

Hamilton.

THE PANSY—"FOR THOUGHTS."

"Of all the bonny buds that blow,
In bright or cloudy weather,
Of all the flowers that come and go
The whole twelve months together,
The little purple pansy brings
Thoughts of the sweetest, saddest things."
—*Mary E. Bradley.*

"Is there not a soul beyond utterance, half nymph, half child, in those delicate petals which glow, and breathe about the centres of deep color."
—*George Eliot.*

IF THE writer had such conceptions of the elegance and soulfulness of the pansy of the not distant past, what would be the sentiment of the surpass-

ing splendors of the many families perfected in the present time?

The last few years have seen most remarkable developments in the pansy world. First, departures from the rich self-colorings seemed to be in the direction of wild irregular splashings in the color and markings, with greatest dimensions, regardless of symmetry and the striking effect of the clearly defined eye. Afterwards came, in evidence of the aesthetic tastes of the Parisians in perfecting, the beautifully

pencilled and regular petalled, richly suffused "Cassier" and "Bugnot" families. Again appear the deeply serrated, gold and silver margined, grandly mottled, mammoth sized, American grown varieties, of surpassing beauty and even fragrance, like to that of the violet. Latterly, fanciers have turned their attention to the development of trade on this bloom as "cut flower." So that we have now extraordinary large flowers, of rich velvety substance, in most elaborate and gorgeous colorings, borne on long stiff stems, well foliaged plants with deep rooting, drought resisting, and great branching characteristics. And many will find in these newer strains such surprises in their new combinations of coloring, cinnamon, canary, orange yellow, black, indigo, and sky blue, cream, violet, claret and fiery red, that the unfolding revelations will astonish, as much as pleases them.

Seed offered from such strains, perfected through years of scientific culture, hybridization, and selection in process of raising, should receive the best attention and skill we can give it, so that we may realize pleasure and profit in our venture to grow them. A few thoughts on this line is my apology for the following abbreviated suggestions:—

The time of sowing and blooming and the purpose for which you grow and bloom them, must be determined by each one engaging in it, for himself. By sowing the seed now indoors, and transplanting into the garden you can secure some sample blooms this season, but you cannot obtain the fullest and best development and possibilities of the plant. Therefore, if you sow early, be satisfied with a few blooms and grow on the plant, as I should, if I were to sow in July and prepare fully for a grand display the following year's autumn—August to winter—and carry over for another year.

Should you desire, or should circumstances require of you, to sow your seed in



FIG. 2054. PANSY.

the open garden, secure a spot somewhat sheltered, and pulverize and make even the seed bed of a nice loamy soil with plenty of

humus—decomposed forest leaves, spent hops, etc. Cover the seed lightly and evenly, keep moist and secure against trouble by placing leafless branches over the bed, and follow the line of culture herein indicated.

I prefer sowing the seed in boxes indoors, because boxes do not absorb the moisture so quickly as crockery, etc., less attention is required, and the seed is too precious to be exposed to loss and disaster from depredations of cats, hens and dogs, and possibly frolicsome children. The box in which the seed should be sown may be about $2\frac{1}{2}$ inches deep, and of width and length to suit your purpose, as, in the same box, within properly defined limits, you may sow other seeds, and thus make one vessel do. It would be advisable to sift or make fine the entire compost for the box so that the fine rootlets may run freely and be taken out in transplanting without much damage. No soil is better for this purpose than a well rotted loamy turf sod, reduced to fine tilth, mixed with a little fine sand and leaf mould. Fill your box to within $\frac{1}{2}$ inch of the top, then take a shingle or piece of smooth board and press the soil firmly to an even surface. On this scatter your seed not too thickly, use a clean side of your shingle, glass or board, and press down the seed evenly and firmly, after which cover with a very fine soil, and to the depth of three times the size of the seed. This is a pretty safe rule to follow in all seed sowing, excepting in the case of very fine seeds, such as *calceolaria*, musk, *begonia*, which scatter thinly upon the top of the soil to which could have been added a little moss dried, rubbed very fine and mixed in the soil near the top. The process indicated for pansy seed sowing is equally good for *primulas*, *auricula*, *cinneraria*, *cyclamen*, *polyanthus*, etc.

This being done, water should be given in a very fine spray to prevent washing the covering off the seed. If you do this

liberally at brief intervals for a few hours at the start, then cover with thick paper and place in a position not too much exposed to sun and air by out of doors, not in danger from storm, and you will be spared much trouble, and germination will be evident in a few days if the seed be new and fresh. Preserve moisture thus, if dried, spray again, and you will soon behold the evidence of upspringing life. Do not altogether uncover at once, but bring to the light gradually, never into a very bright sun, especially through glass. At this stage be quite sure that the seedlings get fresh air in some way, and do not be tempted to have them too wet, more especially so as they begin to cover the soil and crowd each other for room. The main thing now is to secure a strong, stocky growth in the seedling, as nothing so much militates against success in growing a good show plant of the royal "heart's ease" as to allow it to run to a single stem, weak and elongated.

As soon as they are in the four or six leaf they should be transplanted into a bed or frame, that has been specially prepared for them in the meantime, with well enriched soil, deeply dug, thoroughly pulverized and stirred with the hoe or rake to destroy germinating weeds. Cow byre manure is preferable as a fertilizer.

Into this bed transplant the seedlings six inches apart each way. Care should be taken that the rootlets are nicely spread and not bundled together in the planting. A careful watering, in the absence of a timely rain, is now in order, so that the growth of the pansy be not checked by wind or sun. I like to get through this operation in the early evening. Two things departing from this point should be carefully noted: First, use the hoe very diligently to keep down weeds, conserve moisture, and excite nitrification of the soil. Second, as soon as the precocious plant gives evidence of its blooming character pick off every bud and

positively allow no blossom to develop for some time, certainly not until plants are established in their permanent bed, and if you wish to grow for genuine display or competition, or for quality, style and magnificence of plant purely, it is best to sow seed about July 15th to 20th and follow these rules. And let this bed or cold frame, be in such a place that some shelter from wintry blasts will be secured. To assist the young plants in their coming safety through the winter, as soon as the ground is frozen hard, cover liberally with a light mulch of short straw, or better still newly fallen leaves, and do not remove this in the opening spring, till the fear of hard frosts is gone. This prevents damage from thawing and freezing intermittingly, and when they come out they go with a rush right into their life work, which I should, personally, prefer to be on the following lines.

Presuming that the grower wishes to have the greatest satisfaction in securing a bed of large plants, crowned with a wealth of richest blooms of magnificent size and colors, he will in the season preceding have prepared his permanent flowering bed by enriching with well decomposed manure, a deeply dug soil, well drained; in location such as to escape the fervid heat of the mid-day summer sun, and the blighting winds of early and late season; and, as soon as the balmy days of spring appear, after frequently stirring the soil of the new bed to destroy weed life, retain moisture and gain warmth, will transplant his beauties, yet unrevealed, nine inches apart in the row and twelve inches between the rows, noting what has been said about the roots in planting, and not burying the neck of the plant too deeply, or gathering the soil about it so as to smother and cause decay. Then dispose the head of the plant, if already branched in all directions. Pinch off every bud and, if long in the runner, shorten one or two joints with a clean cut. What you want now is root development and spreading top.

Stir the soil diligently, never allowing the plant to suffer for want of water. If watering is a necessity attend to this late in the afternoon rather than in the morning. Continue to carefully pick off all buds till, say, July or even later. In the meantime, top dress with some well rotted manure and work well into the upper inch or two of soil with the hoe. And as pansies are very gross feeders, you will soon discover they have assimilated in their full development all nutrients within immediate reach. So now, that is about August, to give a fresh stimulus to growth and increased vigor for their supreme effort in the unfolding of a vast number simultaneously, of richly painted, thick petalled, immensely large regular blooms, begin at one side of the bed and carefully take away the soil near to the row of plants (all along side the plants) deep enough to receive the whole plant with good depth of roots; then move bodily each plant and settle it nicely and firmly into the place made for it, drawing the soil from the middle of the two rows towards it and continue this until your whole bed of plants now stands where the unoccupied soil was before. This accomplishes two things: first, by this root pruning you check redundant gross growth and promote floriferousness, and secondly, it provides fresh nutrients for enlarged blooms and lengthened life.

When in fullest glory never allow the blossoms to remain on the plant any length of time, but pluck in full freshness and take in-doors and distribute to your friends, the sick, the churches, the doctor's offices, drug stores; mail to the hospitals, sick children, particularly; and you will still have the more to send. Lastly, if you wish to preserve a few choice ones for seed, remove to other quarters, and use slops or light dressing of salt before planting, then when the seed food turns the least brown pluck and dry in a box with holes in.

F. BACON.

Orillia.



FIG. 2055. ADIANTUM GRACILLIMUM.

GREENHOUSE, WINDOW AND GARDEN—V.

THE GREENHOUSE—Most of the present occupants of the greenhouse or conservatory will soon be gradually transferred to their summer quarters outside. Hydrangeas, agapanthus, clivias, genistas and pelargoniums that have done flowering, and other similar plants can generally be safely stood outside under temporary protection about the second or third week in May. Geraniums, ageratum, verbenas, petunias, pyrethrums, garden annuals and the hardier bedding plants are also quite as well stood outside about the same time, before being planted into the bed or borders later on.

Coleuses, cannas, ricinus, achyranthes, palms, azaleas and the more tender plants had better be kept in the greenhouse until

the end of May or early in June. The facilities available for temporary shelter and the condition of the weather, must however largely determine the best time to introduce all plants to outdoor life.

If the greenhouse or conservatory is not occupied during the summer with tender plants that require shade and very little air, the benches may be utilised to grow chrysanthemums on. Owing to the prevalence of the fungus disease, commonly called "rust," that has attacked outdoor grown chrysanthemums so badly during the last few years, it seems to be impossible to succeed with these gorgeous autumn favorites except by growing them under glass all the summer. This plan has been practised for several years by a few growers in Can-



FIG. 2056. SPIREA, ANTHONY WATERER.

ada, and almost entirely so by our florist friends in the neighboring republic during the same period.

To grow good sized plants on benches, five or six inches of good rich potting soil must be used. Early struck plants that should now be in three or four inch pots can be planted eight or ten inches apart each way. The tops of the growth can be pinched off every week or so until July, when the plants should be allowed to grow on without further pinching. Plenty of air night and day, must be given the plants during the hot weather in summer, both top and bottom ventilators being used for this purpose. The plants must never be allowed to become dry at the roots, and will require syringing daily. Early in the day is the best time for both these operations. Later struck cuttings can be planted in the same depth of soil and grown on for single stemmed flowers. These can be planted much closer together than those planted earlier, and must not be pinch-

ed back. A little fine bone meal mixed with the soil before planting will be beneficial to the plants.

Tuberous begonias, gloxinias, fancy caladiums and exotic ferns must have a liberal supply of water at the roots. These plants dislike too much syringing or sprinkling overhead. The tuberous begonias will benefit by being removed to a cold frame any time in June. The protection of a sash slightly shaded must be given them, and plenty of ventilation.

Old plants of cyclamen can be placed in the frame with the begonias, and not given very much water during summer. Young seedling cyclamens can be potted as required and grown on in the greenhouse successfully.

Genistas in pots should be plunged pot and all in the open border, when danger of severe frosts are over.

Plants of early struck stevias and eupatoriums should be potted into six or seven inch pots. These should be plunged in the open border about the middle of June when all danger of frost is over.

Fuchsias will be better brought outside in June and placed in a shaded position on the north side of a fence or building. Pelargoniums can be treated in the same way.

Azaleas should be syringed daily and never allowed to become quite dry at the roots.

Pot roses that have done flowering can be stood out under the shade of a fence or building and given only sufficient water to keep them from drying out at the roots.

Ventilating the greenhouse must be attended to so as to suit the requirements of the plants it contains.

Exotic ferns, fancy caladiums and a few other plants require less air and a more humid atmosphere.

Pot a few good winter flowering geraniums into six or seven inch pots. Plunge these in the open border. Keep the tips of

the young shoots pinched out occasionally until August. The flowers stems must also be kept picked off until September to ensure good flowering results in winter.

It is not too late to sow a pot of East Lothian stock seed. Pot the plants singly into 4-inch pots and plunge pot and all into the open ground until fall. The plants can then be potted into 6-inch pots and taken into the greenhouse. By March or April they will give you some grand spikes of their deliciously perfumed flowers. The white variety is the best.

THE WINDOW—Many of the plants that have occupied the window all winter will be better stood outside in a shaded place. Cactus and epiphyllums that have flowered during the winter or spring, calla lilies, old plants of geraniums that are wanted for next winter's flowering, can be treated in this way. Fuchsias will probably do better stood out in a shady place during the summer.

Plants for the window boxes outside will soon be required. For sunny positions use geraniums, cordylines and coleus for the centre, and vincus (periwinkle), German ivy, nasturtiums, *Othonna grassifolia*, Madame Saleroy geraniums, petunias and a few other sun resisting plants for the edge of the box. If the position is nicely shaded, fuchsias, tall growing abutilons, summer flowering begonias, foliage begonias and similar tender plants for the centre can be made use of, whilst ferns, tradescantias, *Isolepis gracilis*, *Festuca glauca*, etc., will be found satisfactory for planting around the edge of the box. A slight shading to window boxes at mid-day in sunny positions will be beneficial to the plants.

THE GARDEN—The flower bed and borders should have a light coat of well rotted manure forked into the soil if it was not done in the fall. The beds and borders should in any case be forked over just before their summer occupants are placed in them. The herbaceous border should be treated in a



FIG. 2057. SPIKE OF EAST LOTHIAN STOCK.

similar way. Any large clumps of perennial phlox, campanulas, etc., that need dividing up should be attended to early in May.

Annuals and the hardier kinds of bedding plants can be planted out as the weather permits. Water and shade all newly planted seedlings carefully for a few days after transplanting.

Put the brushwood sticks or other supports to sweet peas before they commence to run. If left later the vines are oftentimes injured.

Give the rose bushes a sprinkle of dry hellebore before the buds are developed. A second application may be necessary. This will keep down the rose slug or maggot. Half a teaspoonful of Paris green, well mixed in a small quantity of water first, and sufficient water added to make two gallons of the poison liquid, will answer the same purpose sprinkled on the rose bushes.

A strong solution of tobacco water is the best preventive and remedy for the small white pests—the rose thrip—that attacks rose bushes in June and July. Pour boiling water on a handful of raw tobacco or raw stems in a pail. When the liquid is cool, strain it off and add sufficient water to make two gallons of the solution. Sprinkle or syringe the foliage with this solution, once or twice a week, before these pests have made much headway. Sprinkling raw tobacco or stems around under the plants is a partial remedy against the attacks of this enemy of the rose.

Bulbs that are out of flower can be taken up and planted in some out-of-the-way place to ripen. If the bulbs can be left undisturbed, especially the tulips and crocuses, they will give good results next season. But it is useless to leave them in beds intended for coleus, geraniums and similar strong growing plants, unless the bulbs are a great distance apart from each other. Small annuals such as alyssum, candytuft, portulacca, etc., might perhaps be sown without disturbing the bulbs, but the results are not often satisfactory.

Gladiolus should be planted out during May at intervals of a week or two. Plant the bulbs three or four inches deep, in good light soil.

Dahlia roots can be planted out the last week in May in safety.

Ricinus, cannas and tender plants are better not planted outside until well into June.

VEGETABLE GARDEN.—The main crop of beets and carrots should be sown early in May. Second early and late potatoes can be planted from the middle of May until the first week in June.

Celery plants, from seed sown in April, will require transplanting into a small frame out of doors. The plants must be kept well

watered and shaded until they have started into growth.

Successive crops of peas and beans as required can be sown. The Golden Wax, Early Valentine, Excelsior and Refugee are good beans for the garden. Horsfords' Market Garden, Burpee's Profusion and the Stratagem are good kinds. Plant second early corn about the second week in May. Early Minnesota, Cory, Hickock's Improved and Stowell's Evergreen are four good varieties. By sowing these four varieties at the same time they come in for use one after the other in the order named. The Stowell's Evergreen is a grand main crop sweet corn, the immense ears it produces remaining fresh and sweet for a long time. Plant a few seeds of vegetable marrow squash in the hills of corn. The Bush Marrow is the earliest variety, but the long-running English Marrow is the most productive kind.

A second crop of spinach may be sown early in May, but it is doubtful if it will yield profitable returns.

Plant out leeks as soon as large enough in shallow trenches prepared the same as for celery.

Start the hoe and cultivator early to keep down weeds and to help the crops.

Sprinkle powdered hellebore on the gooseberry and currant bushes to check the ravages of caterpillars.

Radishes and lettuce should be sown early in May so as to secure a succession of salads for the table.

Late frosts must be watched for and guarded against in May and early June. A little protection given now to early crops, for perhaps only one night, means the enjoyment of a dish or two of vegetables very early, at a time when they are certainly a great luxury.

W. HUNT.

Hamilton.

DECIDUOUS SHRUBS.

I HAVE often considered the want of a reliable list of the best, most floriferous, useful and hardy deciduous shrubs a great drawback to the general planter of such stock ; hence my reason for compiling this list, trusting it may serve a good purpose. It will certainly save busy people from turning up hundreds of varieties in the different catalogues and journals, when if not familiar with the varieties, they are very apt to be led astray by the glowing descriptions given, and those unfamiliar with shrubs are apt to be confused since with their great number, so many of them being so alike in appearance. Another mistake too often made in catalogues is their silence as to the hardiness of plants, and the silence of our journals in not condemning such, so saving the unwary from spending their money in useless stock. Farmers are generally ridiculed for not planting trees, shrubs and hardy plants about their houses ; they are not all bred gardeners, why then not tell them the varieties to plant ? Why not give good prizes at our large exhibitions for collections of such stock, and have them named ? I think that a prize offered by the government for the best named collection of trees, shrubs and herbaceous flowering plants would be of untold value to the country by educating the farmer and the mechanic as to what to plant. I hope the following list will be found to fill the bill, and as to the names there is nothing here mentioned that will not do well in Welland or Lincoln counties.

1. *Berberis Thunbergii* — From Japan, about 3 feet high, one of the best dwarf shrubs in cultivation ; flowers yellow, in drooping racemes followed by red berries in the fall and continuing well through the winter ; no collection should be without the Japanese berberry.

2. *Berberis var. purpurea*—A purple leav-

ed variety of our native *Berberis vulgaris* ; will grow to 8 feet high and is a beautiful object as a specimen plant on the lawn or as a hedge plant : a hedge of this plant looks well throughout the summer, and well into the winter after the leaves fall, with its quantities of berries, particularly if planted on poor sandy soil. The fruit is much prized by the partridges, and is equal if not better than cranberries to eat with turkey at Christmas, if canned before getting frozen. My experience is that the purple variety does not fruit as freely as the native variety *B. vulgaris*.

3. *Caryopteris mastacanthus*, or Verbena Shrub—About 3 feet high, blooms from September until cut down by frost ; this shrub is a grand acquisition ; it is one of the prettiest flowering shrubs that I know of, the flowers resemble heliotrope, it blooms in the axils of the leaves and all along the stem ; the leaves are very pretty light green



FIG. 2058. DEUTZIA, PRIDE OF ROCHESTER.



FIG. 2059. WHITE FRINGE.



FIG. 2060. ELEAGNUS LONGIPES.

above and very silvery on the under side; the whole plant has a beautiful odor. If this shrub proves to be hardy, there is no shrub will give as much pleasure; there are two colors, blue and white.

4. *Chionanthus Virginica* (White Fringe)—This will grow from 5 to 8 feet high in rich deep soil; is also a hardy gem, producing racemes of white fringe-like flowers about the first of June, followed by purple clusters of fruit, like grapes, in the fall.

5. *Corylus var. purpurea*—(Purple leaved hazel)—This plant is by all odds the best purple foliage plant for general purposes we have and very hardy; it is very showy at a distance. It will grow to 10 feet high, but can be kept dwarf by trimming.

6. *Daphne mezereum* (*rubrum* and *album*) should be in our collection of shrubs from the fact that they are the earliest flowering shrubs we have, and of very sweet perfume. This plant is a native of Niagara Falls and is very hardy; flowers before leafing out; it grows to a height of 5 feet.

7. *D. crenata*, single white.—Will grow to 7 feet high; all the deutzias are beautiful shrubs, and we cannot afford to leave all of them out of the list.

8. *D. crenata flore pleno*—Double pink flowers in racemes in the month of June, 8 feet high.

9. *D.* (Pride of Rochester)—Double white tinged with pink, a very beautiful variety, but I think it a little tenderer than the last. This one is

useful for florists' work, to cut from.

10. *D. gracilis*—This one is of a dwarf bushy habit, very hardy, pure white, single flowers in racemes completely covering the plant, good to force in the greenhouse, also good to cut for florists' work, will flower in May; about 4 feet high; will flower at Easter when forced.

11. *Eleagnus longipes*—Silver thorn of which there are several varieties; this one has the most beautiful foliage of a greenish

white above and a silvery white on the under side, which shines in the sun.

12. *Eleagnus umbellata* — The female plants of this variety are a grand sight to see when in fruit, the leaves are silvery white like the rest of its class; the fruit is eatable, of a reddish amber color about like currants in size; flowers small and yellowish, not showy. Plants can be kept down by trimming to 7 or 8 feet in height.

13. *Enonymus Europæus* (European strawberry tree)—This shrub will grow to about 10 feet in height; should

be kept as a single specimen plant, which makes it more attractful when bare of leaves in the fall; about the first frosts the seed pods begin to open, exhibiting their strawberry colored seeds which remain on the plants all winter, making them pretty objects standing among the snow; flowers small, chocolate color.

14. *Exochorda grandiflora*—From China, hardy here, a most beautiful shrub, bearing white flowers in clusters, very showy, about 6 feet high—one of the best.

15. *Forsythia Fortunei*, var. *suspensa*, and var. *viridissima* (Golden Bells)—From China; the three varieties are hardy here, in bloom end of April or first of May; a grand shrub covered with bright golden bells before leafing out; blooms here the second time in the fall.

16. *Halesia diptera*, and *H. tetraptera* (Silver Bells)—This plant becomes a mass of



FIG. 206I. EXOCHORDA GRANDIFLORA.

white bell-like flowers, will grow to small sized trees, 10 or 12 feet high; there is no plant prettier when in bloom about the middle of May; blooms before the leaves expand; belongs to Southern States.

17. *Hibiscus syriacus*—*Althæa* (Rose of Sharon)—It will grow to 10 feet high; extremely useful on account of their late flowering; they bloom profusely at a season of the year when but few shrubs are in bloom, 1st August. There are double and single flowering varieties. The following will be found as good as any H. var. Carnation, double white striped red; H. var. Cœrulea, double blue; H. var. Lady Stanley, double white, tinged pink; H. var. Variegatus, leaves beautifully variegated.

18. *Hydrangea paniculata grandiflora*, grows from 5 to 6 feet, but should be kept cut back to within 4 or 6 inches of the old stem or trunk each spring, and only leave



FIG. 2062. MOCK ORANGE.

four or five of these short stems to have large panicles of bloom; a long-lived healthy plant, blooming in August and September; from Japan.

19. *Hypericum Moserianum* (St. John's Wort)—Grows to about 3 feet in height, a very desirable hardy shrub, producing yellow flowers 2 inches across from July to fall; native of America.

20. *Ilex Verticillatus* (Deciduous Holly)—5 to 6 feet high. I met with a plot of these shrubs lately in our own woods, and I thought them one of the most beautiful sights I had seen for a long time, the plants were literally covered with bright red ber-

ries, the ground being covered with snow made them look all the brighter; they last all winter; flowers small, white in July.

21. *Ligustrum*, var. *tricolor* (Privet)—This variety I would recommend on account of its beautiful variegated foliage, a very pretty sport of the common Privet.

22. *Lonicera* (Bush Honeysuckle.) Turkestan. L. var. *candida*, 8 to 10 feet, white flowers in end of May.

23. *L.* var. *fragrantissima*—This is a Chinese variety, greatly admired for its very sweet scented pinkish white flowers which appear early in spring.

24. *L.* var. *grandiflora* is probably one of the best of all, much larger pink flowers than the type blooms in May.

25. *Pæonia Mouton* (Tree Pæony)—3 to 4 feet high; slow growing, but when matured will agreeably surprise the owner by the large rosy pink double flowers it produces in profusion; requires rich soil.

26. *Philadelphus* (Mock orange)—Southern United States. *Philadelphus grandiflorus* is one of the best, 10 feet.



FIG. 2063. PÆONIA PAPAVERIFLORA.



FIG. 2064. SPIRAEA, VAN HOUTTEI.

27. *Philadelphus var. aurea*—Is a golden leaved variety of the preceding one, and of a dwarfer habit, good.

28. *Prunus pissardi*—8 to 10 feet, a grand purple leaved large shrub or small tree, retains its color until the fall, a valuable plant for color.

29. *Pyrus Japonica* (*Cydonia Japonica*) Japanese Quince, or Burning Bush, too well known to need description, 5 or 6 feet high.

30. *Rhus cotinus* (Mist or Smoke Tree)—8 to 10 feet, bears large panicles of mist like flowers in June from which it derived its name, native of United States.

31. *Sambucus* (Elder) *var. aurea*—A golden leaved variety of the common elder, a showy plant for color effects; 6 feet high.

32. *Spiraea*—The spiræas are very desirable shrubs in all shades of color, double and single flowers. They grow from 2 to 6 feet high; there are about 49 varieties that I am acquainted with. The following are about the best:

33. *S. bumalda*—2 to 3 feet, one of the best of the newer sorts, flat heads of rosy pink flowers.

34. *S. Anthony Waterer*—2 to 3 feet, a

continuous bloomer all summer; a sport of the preceding one, crimson flowers.

35. *S. callosa*—3 feet, pink flowers, and continues in bloom a long time, hence its value.

36. *S. callosa variety alba*—A white variety the same as the preceding variety.

37. *S. punifolia* (Bridal Wreath)—Too well known to need description; 5 feet high, double white flower.

38. *S. reevesii*, var. *flore pleno*—3 to 4 feet high; a very beautiful variety bearing double white flowers about the size of daisies, one of the best; in bloom about first of June.

39. *S. thunbergii*—4 feet; this one has single white flowers in two to four all along the young wood and preceding the leaves, very pretty; in flower about the first of May.

40. *S. Van Houttei*—This one when in bloom would mind one of banks of snow; a grand variety; also makes a pretty hedge, 4 feet high.

41. *Symphoricarpus*—(Snowberry) var. *vulgaris*—This one bears red berries; very pretty in the fall.

42. *S. racemosus*—Bears white berries, otherwise like the preceding one, both are nice planted together.

43. *Syringa* or lilac—The lilacs are too well known to make any comment upon them, suffice it to give the names of a few of the best, and will begin with the Persian varieties, which are dwarf, growing to about 8 feet high; they have small leaves and are profuse bloomers; *Syringa Persica* (Persian lilac) flowers light purple.

44. *S. persica var. alba*—The white form of the preceding; both are good to plant among some of the larger varieties.

45. *S. vulgaris*—This is the common garden lilac, 10 feet high, purple flowers.

46. *S. alba*—A white form of the above. Both are as reliable as any of the newer ones of which there are a great number.

47. *S. var. comte Horace de Choiseul*—Reddish lilac, and double flowers.

48. *S. Charles the 10th*—7 feet, very good purple.

49. *S. vulgaris Marie Legrange*—4 feet, a dwarf form, with large white panicles, very good.

50. *Tamarix Africana*—Grows to 8 feet high; has small pink flowers, in slender racemes, which appear towards the end of May or the first of June; the foliage is small and heath like; makes a good green for bouquets.

51. *Tamarix Indica*—6 feet high; blooms at the end of August or first of September, of a brighter rose color than the above variety. A few plants planted together of the tamarisk makes a fine display of which the bees are very fond.

52. *Viburnum plicatum*—6 to 7 feet, Japanese snow ball; this is one of the best shrubs in cultivation.

53. *Weigelia or Diervilla* (var. *rosea*)—One of the best, and flowers the second time in the fall.

54. *Weigelia candida*—Pure white variety of the above.

55. *Weigelia desboisii*—Dark rose color.



FIG. 2065. AFRICAN TAMARISK.

56. *Weigelia variegata*—A variegated leaved sort, all are grand shrubs for any lawn, grows to 7 feet high.

Niagara Falls South. R. CAMERON.

THE PHYLLOCACTUS.

THE Phyllocactus (flat leaved) are the most satisfactory bloomers under the ordinary conditions of house culture of all the cactus family. They are for this reason the most commonly found in the windows and conservatories of amateur flower growers.

They have many good points to recommend them, the principal one being the freedom with which their magnificent flowers are produced. They seem to reward the greatest neglect with a profusion of bloom, which is unequalled by any of the ordinary

decorative plants in cultivation. To many people the very name of cactus is quite enough to satisfy them that the plant mentioned is undesirable, and they do not give them a trial, thus missing the pleasure felt by anyone fortunate enough to own a good specimen when it is laden with its gorgeous flowers.

Perhaps the easiest Phyllocactus to grow and bloom, and the one oftenest seen in window garden, is Ackermanni, or King cactus. This grows to large size, and as it gets strong, makes a lot of new growth each



FIG. 2066. PHYLLOCACTUS.

of six hundred flowers, and are the pride of their owner. Another very strong grower, with much larger leaves than Ackermanni, is *P. Anguliger*, which also has a larger flower, and is a good contrast both in color of stem and flower. The stem is a fresh pea green, and the flower is white. It is a winter bloomer, and was illustrated in the January Horticulturist.

Another species of a very slender growth, altogether out of proportion to the wonderful bloom it bears, is *P. Pfeferdorffi*. It is rarely seen, and only shows its good qualities when in flower. The flowers are from 8 to 10 inches across, very fragrant, and are valuable because the sepals are a clear yellow, with white petals.

P. Rosens Superbus is of easy growth, and blooms when very small. The flowers are a pleasing rose shade, and a nice addition to any collection. Some of the rarer parts have flowers of a purple shade, such as *P. Kampmanni*, *P. Laloyi*, *P. Conway's Giant*, and others. But the Queen of them all, and one quite commonly seen, is *P. Latifrons*. This fine species is a night bloomer of easy rapid growth, and is often wrongly called the night-blooming-cereus. The mistaken idea that many have, that all cactus which bloom at night are night-blooming-cereus, is a common error. *P. Latifrons*, called Queen of Night, has a distinct style of growth, well shown in the illustration, Fig. 2066. A well grown plant looks like a fresh green shrub about five or six feet high. Its growth is in round woody stems three or four feet high, surmounted by the broad flat leaves from which its name is derived. Given a good rich soil, plenty of water while growing, and a position slightly shaded from the heat of the sun, and it will reward you with plenty of its magnificent white flowers. These open at night, and are very fragrant, filling the air around them with their delicious perfume. This is a most satisfactory plant for any one to grow,

season. The fine satiny scarlet flowers are borne along the edges of the leaves at every notch, and very profusely. The buds in all stages of maturity keep the succession of brilliant bloom up for a long period, beginning in February. There are two specimens of this plant in a conservatory at Niagara Falls which bear annually upwards

and is a good decorative plant if well grown, even when not in bloom.

The culture of the *Phyllocactus* consists mainly in not allowing any stagnation around the roots and providing the proper soil. A good compost is made by using a light, well rotted pod, with one-third each of leaf mould, dried cow manure ground

fine, and sand added to it, and the plants potted rather dry. Plenty of charcoal in the bottom of the pots gives a good drainage, and plants need not be repotted, after they are a good size, for years. An annual top dressing of the same compost used in potting will be found the best treatment.

Woodstock.

J. H. CALLANDER.

THE PURPLE FRINGE (*RHUS COTINUS*).



FIG. 2067. PURPLE FRINGE.

This Purple Fringe or Smoke Tree, as some call it, is one of the favorite mid-summer flowering shrubs in Western Ontario, where it has been grown for the last 30 years. It belongs to the same family (*rhus*) as the sumac, which though affording us the most beautiful of colored foliage in the fall, is also one of the most troublesome things to eradicate with which we have to contend. This shrub however is not troublesome in that way, for it does not readily produce suckers, and is easy destroyed if not wanted. But it is so beautiful a shrub that so far we have never had enough of the plants, let alone too

many. It is a native of Southern Europe, from Spain to the Caucasus, whence it was introduced to England in 1656.

It is rambling in its habit, making a large round bush which give a better effect grown singly than in groups. Towards the end of June it is a mass of large panicles of purplish misty blossoms, which are very beautiful. These are very effective for a long time, and everyone feels attracted to them for cutting to add to bouquets and other decorations.

The photograph shows one of those shrubs growing at Maplehurst.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE SWEET CHESTNUT.—Some of our readers are anxious to plant nut trees for profit, but have no information regarding their hardiness. We have a chestnut ridge where a large number of magnificent old native sweet chestnut trees are growing in deep rich sand. This is in latitude $43\frac{1}{2}^{\circ}$. We would be pleased to hear from our readers how much further north these trees will succeed and mature their nuts.

and it will require some years under our system of government to secure the universal adoption of any standard."

THE STANDARD APPLE BARREL.—We have just received a letter from Wm. A. Taylor, Assistant Pomologist, U. S. Department of Agriculture, Washington, acknowledging receipt of information about standard size of apple barrel adopted in Canada. He says, "We believe this is a step in the right direction, as it tends to simplify marketing. There is still a great diversity in the standard of apple barrels used in this country,

GEORGIAN BAY FRUIT GROWERS.—A strong Fruit Growers' Association was formed at Collingwood on Friday the 27th of March to be known as the Georgian Bay Fruit Growers' Association, with Mr. Charles Lawrence, as Secretary. One important object of this society will be the Co-operative handling of fruit, especially apples, of which it is stated that at least 100,000 barrels are produced annually in that district, of such a quality that they bring a special price in the best markets.

Some of the members of this society are desirous of affiliation with our association, and this may be carried into effect. The plan is to make the membership \$1.00, so that after paying the fee for each member

to be a member with us, they could retain the usual commission of 20 cents a member for their own treasury. Then each member would receive our journal, plants distributed, reports, etc., our lecturer would visit their meetings, and their proceedings would be published by us.

FRUIT IN NIAGARA DISTRICT.—Mr. E. D. Smith of Winona, reports to the *Toronto Globe* that the prospect for peaches, pears, grapes and other fruits in the Niagara district is unusually encouraging for the coming season. The export to the Northwest shows great possibilities for Ontario fruit growers so soon as varieties are grown which will endure long shipments. It is not the packing that our Winnipeg friends need to complain of with regard to Ontario fruit, but the fact that the varieties grown in California are better for long shipments than ours. This export trade in tender fruits is a new development, and in future this consideration must largely govern varieties planted.

Mr. E. D. Smith states that last year he alone shipped two hundred car loads of fruit from this district, via Hamilton & Grimsby electric road and Canadian Pacific Railway.

PAN-AMERICAN.—The transportation facilities would seem to be ample for all possible demands of the mammoth crowds which are expected. The entire street railway system of Buffalo, driven by the power of Niagara Falls, is so laid out as to secure direct communication from all parts of the city to the Exposition grounds. At the northern boundary of the grounds there has been built a fine steam railway station. A two-track steam-belt line encircles the City of Buffalo reaching this station, and all the steam railroads centering in Buffalo have access to these tracks. This means of transportation will be extensively used, both for excursion trains from out the city and for conveying

people from the various parts of the city to the grounds.

Mr. THOMAS MEEHAN, the eminent botanist and nurseryman who is at the head of the firm that publishes that high class journal known as *Meehan's Monthly*, is well represented to our readers in the accompanying likeness. Born in London, England in 1826 he is one of the oldest living members of the American Association for the advancement of science, and his election to membership of the Royal Wernerian Society of Edinburg before he was of age was an honor unusual to one so young.



FIG. 2068. THOMAS MEEHAN.

His literary work is quite voluminous, but his greatest and most important undertaking is the "*Flowers and Ferns of the United States*" each illustrated with a magnificent colored plate. This was first published by Prang & Co., of Rochester, but is now continued in *Meehan's Monthly*.

QUESTION DRAWER.

Dwarf Apple Trees.

1215. SIR,—Are dwarf apple trees as hardy as standards? Are they as successful in Ontario?

Newbury.

J. GANDIER.

The apple tree is dwarfed by being grafted or budded on a small growing species, usually either the Paradise stock, a small variety, never reaching over three or four feet in height, or the Doucin, a medium size tree, producing small sweet fruit. The object of dwarfing apple trees is to adapt them to a small garden, and on the Paradise stock they make beautiful little miniature trees, say four feet in breadth and height, which, when loaded with bloom, are very attractive.

We do not know that this stock is any hardier than the free grown seedling stocks usually employed for standards, some of which are more hardy than others. Although the fact that so many orchards of Fameuse are grown about Montreal on dwarf stock would give one the impression that they are at least equally hardy, if not more so.

We should be pleased to hear from any of our readers who have experience in the colder sections.

As to the success in growing them, if our correspondent means, are they as profitable as standards, we would say certainly not. They would not give nearly as many apples per acre, and are chiefly intended for the small garden.

We must, however, give testimony to the excellent size and color of the Astracan, which we have been growing at Maplehurst now for nearly forty years on Doucin stock.

Gillett's Lye.

1216. SIR,—I want to spray my snowball (opulis sterilis?) and roses for the aphedes eggs at once and Gillett's Lye has been strongly recommended for the purpose. Could you give me any idea what strength should be used before the buds

burst and after; also if it will injure the lawn about the shrubs? If the lye be used safely and effectively for such purposes it will prove a boon to me who has found kerosene emulsion and tobacco water dirty and very troublesome to prepare. I wrote Gillett's people, having seen the recommendation in the Horticulturist, and they referred me to you. I am of opinion that many busy men are deterred from growing plants to the extent they would because spraying has now become in many cases essential to success, and the spraying mixtures have to be experimented with before they can be used, and are dirty besides.

A. B. ORD, Ingersoll.

We have never yet fully satisfied ourselves as to the strength in which this should be used, and so far as we know our experimental farms have not fully tested it. We found it effective in killing cherry aphid used in the proportion of one 10 cent package to 5 gallons of water, but destructive to the foliage. Dr. Fletcher says he has not yet found it very satisfactory in killing oyster shell bark louse, for though it kills the very young scales, it is not sufficiently effective to warrant its use. The samples he has examined have turned out to be simply caustic soda, which even at a strength of one pound to three gallons did no permanent harm to the foliage. Prof. Shutt writes that he supposed the formula for lye wash for dormant wood, was one pound to three gallons of water, and for use after the foliage has appeared, one pound to forty gallons of water. Prof. Shutt is now engaged on the analysis of a number of Canadian and other lyes and will report later on.

Nut Trees For Ontario.

1217. SIR,—Could you please tell me what nut trees are hardy and bear nuts around Toronto, and especially whether I can grow the American sweet chestnut, also whether anybody has succeeded with the Salisburia.

Todmorden, Ont.

WM. KIDD.

In reply to your question regarding nut trees which are hardy and would bear nuts at Toronto, I beg to give the following list:—black walnut, butter nut, Japanese

walnut (*Juglans sieboldiana*), and shell black hickory, all of which should be perfectly hardy at Toronto and produce fruit nuts. There are two kinds of hazel nuts which would also be quite hardy, namely, *Corylus rostrata* and *C. Americana*. The European filbert or hazel, though it would probably prove hardy at Toronto, so far as the wood was concerned, would not be likely to set fruit. The reason why the nuts do not set is that the pollen from the male flowers is shed before the female flowers are in a condition to receive it, the result being that the latter are not fertilized and no fruit forms. If the pollen were saved and applied artificially it is possible that the fruit would set. The American sweet chestnut is not perfectly hardy here. We have, however, a few trees which have not been

injured by winter and have produced nuts, but there were no kernels developed. The conditions at Toronto should be more favorable for growing the sweet chestnut than at Ottawa. The *Salisburia* is hardy here, and should succeed near Toronto.

W. T. MACOUN.

Horticulturist C. E. F. Ottawa.

Scions of Canada Red.

1218. SIR,—This last spring I put in about a dozen grafts of Northern Spys into a Canada Red tree, and they grew to nearly three feet in length but very small around. Will you please say through the Horticulturist what I had better do with them?

Norval.

F. F. BRADFORD.

The Northern Spy is inclined to grow rather slender wood. We would advise thinning out the growth, and cutting back from one-half to two-thirds its length.

Open Letters.

Hillcrest Orchards.

SIR,—From your note at the end of the article on Hillcrest Orchards, Kentville, N.S., in your March number, it might appear that the writer, Prof. Macoun, had been incorrectly informed as to the value of the oldest part of the orchard. To substantiate the figures which Prof. Macoun quoted I wish to say that this valuation of \$1,000 per acre has been placed upon the oldest part of the orchard by at least a half dozen orchardists well qualified to judge. Different blocks have different values according to age of trees. On the block of twenty acres referred to, the apple trees, 40 to the acre, are eleven years of age, and the additional intermediate trees, 280 to the acre, of the most desirable varieties of plum, peach, pear, cherry, apricot and quince, are from five to seven years of age, each one ready for work and not interfering in the least with the apple trees. Had there been but the forty apple trees to the acre it would not have been valued at more than \$400 to \$500 per acre at its age, but in its present condition it is not remarkable that it has been considered worth double that amount.

I am aware that this is the highest figure for orchard land, still some well cared for apple orchards of full grown trees of the usual number, forty to the acre, have changed hands in Kings county at that price and if you will do us the honor of a visit some time I will be pleased to show you from 20 to 40 orchards of from five to ten acres each, within a radius of seven miles of Kentville, whose owners will tell you, I think, that they

would not take less than that figure for them. There would, of course, be many in the same area, equally as old, that would not be worth more than from \$300 to \$600 per acre, but when our best fruit men are getting from 100 to 125 barrels of shipping fruit per acre yearly and receiving direct from the London commission men an average of \$2 25 per barrel for their season's crop you will understand the appreciation our orchardists have for such property. Respectfully,

RALPH S. EATON.

Kentville, N.S., March 27th, 1901.

Grapes in Waterloo County—Three Good Ones

SIR,—Ten years ago I planted a few grape vines, among others, the Brighton, Worden and Moore's Diamond, three grand grapes, for the home garden. They have done exceedingly well here bearing fine crops every year.

Brighton, red, clusters large and long, finest flavor of any grape I have. Worden, black, the first to ripen, about the first of September; very good berries, large as Concord. Moore's Diamond, white, very good berry and cluster large and fine—a sight to see. For the farmer's garden these three would make a fine collection and give abundance of that fine fruit for the home.

The Green Mountain grape I received from the Association of Fruit Growers is a good grape and is doing well; early as Worden and very sweet.

Galt, Ont.

WALTER M. TURNBULL.

Pan American Notice.

SIR,—Will you permit me through the columns of your valuable journal to draw the attention of all fruit growers in the Province of Ontario to the fact that the fair name which our province enjoys, as a country producing in abundance fruit of fine appearance and magnificent quality, will be put to a severe test during the coming season at the Pan-American Exposition. Surrounded as we will be, not only by the fruit products from the various states of the union, but also by those from more distant and tropical countries, all of which will be fully represented in the Horticulture Building, it is very desirable that we spare no effort to maintain the reputation which Ontario has gained already at the Expositions of Chicago, Paris and elsewhere, and to secure, if possible, fresh laurels.

With this end in view, I am extremely anxious

to enlist the co-operation and hearty assistance of all fruit growers in the different sections of the Province, and I know of no better way to reach them than through the columns of the Horticulturist.

I have been much gratified with the many expressions I have received of intentions to forward fruit in season from different points, and I trust that every section of the Province will, either through prominent individuals or through its Horticultural Society, be able to furnish a supply of choice fruit from time to time.

I hope to be able in the next number to furnish your readers with a full statement of the arrangements as to awards etc., under which fruit will be exhibited during the season.

Yours respectfully,

St. Catharines, April 22.

WM. H. BUNTING.

Our Affiliated Societies.

CAYUGA.—We had our open meeting last night in the Court House. An orchestra of seven pieces played for us. The Court Room was banked with flowers at the end, and a large audience filled every seat. Mr. Bacon's lecture was much appreciated. He knows his work thoroughly and is a clear, explicit and intelligent speaker. He also was much pleased with his reception and our new work as a new society. A. K. GOODMAN, Secretary Cayuga Horticultural Society.

THORNBURY.—On the evening of the 18th inst. the Thornbury Town Hall was crowded to the doors by an enthusiastic audience to listen to the lecture and musical entertainment held under the auspices of the Horticultural Society. After a chorus by the Glee Club, of about forty voices, Mayor Pedwell, who occupied the chair, called upon Miss Blanche Maddock, of Guelph, for her lecture on "Window Gardening," which proved most interesting and instructive, and gave new light on many points regarding the culture of flowers, and was just such a talk as the ladies of this section have been wishing for for some time.

After well rendered solos by Mr. McInnes and Mr. Pedler, Mr. Hutt, of Niagara Falls, delivered his lecture on "Beautifying the Home," prefacing his lecture proper with a short, but very interesting talk on "Nature Study." Mr. Hutt gave many practical suggestions on landscape gardening, making and care of lawns, ornamental shrubbery, etc. Also during the afternoon Mr. Hutt visited the schools of Thornbury and Clarksburg and addressed the children.

The evening meeting closed with more music and the national anthem.

The Thornbury society is flourishing; has a membership of sixty-five, and don't have to canvas for members.

J. G. MITCHELL, President.

April 22nd, 1901.

KINCARDINE.—Pursuant to notice given the Kincardine Horticultural Society were favored on Friday evening, the 19th inst., with two most inter-

esting addresses delivered in the Town Hall here, one by Mr. A. McNeill, of Walkerville, on 1st—House plants; 2nd—Plants, trees and shrubs for the ordinary town lot. The other address being by Miss Laura Rose, of Guelph, on 1st—Why I have a garden; 2nd—On economic gardening. The audience was a fairly good one considering that the weather was cold and a protracted or revival service was being held at the Canada Methodist church, close by our lecture hall; notwithstanding these our gathering was a decided improvement on what we have been accustomed to in the past shewing an increased or growing interest in horticulture, etc, about 250 being present. Mr. McNeill was listened to with very marked attention and the several demonstrations of applause evinced during his address and when he concluded, showed plainly that all were highly pleased. Miss Rose fairly delighted everyone and it is quite safe to predict a full town hall to hear her on her next visit to Kincardine to instruct us in the happy art of cottage gardening. I must not forget to report that Kincardine's worthy mayor, G. M. Mackendrick, Esq., kindly gave the free use of the town hall in the afternoon when Miss Rose gave and interesting address to a large number of the school children, a treat they will not soon forget.

T. BARKER, Secretary.

SEAFORTH.—The enclosed clipping from the Huron Expositor of this town contains a very good account of our public meeting on Wednesday evening, and expresses, I think, the opinion of all who were present:

The meeting in the town hall on Wednesday evening under the auspices of the Seaforth Horticultural Society, was a very successful and interesting affair. The attendance was large, the hall being well filled. The chair was occupied by Mr. Wm. Ballantyne, president of the society. Excellent and instructive addresses were delivered by Miss Rose, of Guelph, and by Mr. McNeill, of Windsor. They are both good speakers, and they have the faculty of making their addresses interesting as well as instructive. Musical selections

were also given by Mr. Will McLeod and Master Willie Hays. The meeting was in every respect a gratifying success, and will, no doubt, do much good in the way of stimulating renewed interest in the society, as well as in the pleasant pursuits of floriculture and horticulture. In the afternoon Mr. McNeill addressed the students of the Collegiate Institute, and Miss Rose the pupils of the public school."

Mr. McNeill is indeed a practical man and speaks of what he knows. Miss Rose's address was simple, yet pleasing and instructive. There will certainly be some results from their visits to the various towns.

Our society has grown some this year, both in numbers and in interest.

Although you do not very often hear from us, we nevertheless very much appreciate the Horticulturist.

V. KNECHLET, Secretary.

PICTON.—The addresses given by Miss Maddock and Mr. Hutt on Monday evening, in Shire Hall, under the patronage of the Picton Horticultural Society, were a decided success. The hall was full, the audience being very attentive and appreciative of the matter laid before them. The question box was well patronized, and the information clearly given by Mr. Hutt and Mr. Wise, florist at Messrs. J. Terrill & Sons'. The subjects dealt with by Miss Maddock were principally "Beautifying the Home," and "Domestic Science," while Mr. Hutt spoke of the "Birds and Insects," in relation to flowers and trees. Both speakers referred to the remarkable success of Mr. Ross, the secretary of the society, with the tropical and economic plants he has given his attention to. These lectures to the horticultural societies are now under the management of, and the delegates are sent by the superintendent of the Farmers' Institutes, and no doubt will be of much value to those interested in horticulture.

CARDINAL.—The officers and directors of the society have reason to feel satisfied with the good success that attended the afternoon and evening meetings on Tuesday last. The society was favored with the presence and help of Mr. W. N. Hutt, of Southend, and Miss Blanche Maddock, of Guelph. In the afternoon the scholars of the Public School were treated to an address by each of the above named visitors, and so interested were the children with the addresses that they called "More, more."

The Town Hall in the evening was most tastefully arranged with bunting, flags, flowers, etc., and the display of plants on the platform was handsome. President R. B. Dowsley, Reeve of the village, acted as chairman. A short musical programme had been arranged, including songs from Mrs. W. B. Sweet, Mrs. N. Bolton, Miss E. Ross and Rev. Mr. Stafford, while Mrs. W. A. Logan and Miss Ross acted as piano accompanists.

A large audience assembled which completely filled the seating capacity of the hall. Two addresses were delivered by Mr. Hutt and one by Miss Maddock. In a racy, interesting and most instructive manner Mr. Hutt dealt with pruning, spraying, insects, birds, etc., and Miss Maddock on the mission of flowers and window gardening. At the close Mr. W. A. Logan, in moving a vote of

thanks, and Mr. M. L. Connelly in seconding the same voiced the sentiment of all present in pronouncing the meeting one of the best and most instructive the society had ever held.

For a membership fee of only one dollar per year, there is given about twice that amount in plants, bulbs, etc., and in addition a monthly horticultural journal.

PERTH.—The above Society held its first open meeting yesterday in the Town Hall here. There was no distribution, as we had distributed four tuberous begonias and six gladioli a short time before, and have yet to receive our Crimson Rambler rose and clematis paniculata for later distributing.

The committee appointed for the purpose had the stage beautifully decorated with palms, ferns, and flowering plants in great profusion.

At three in the afternoon all the schools of our town turned out with their teachers and paraded to the Hall. There were upwards of 500 pupils there. The meeting was opened by Mr. Charles Meighen, the Chairman of the School Board, in a very neatly turned speech, introducing Dr. Jas. Fletcher.

Dr. Fletcher is Entomologist and Botanist at the Central Experimental Farm, Ottawa, but, as he humorously puts it, he is more familiarly known as the "bug and weed man." He kept the attention of his audience riveted for three-quarters of an hour by his simple delivery and the simple facts he brought to their attention. The text of his lecture was "The Value of Nature's Study in Education," and he brought out many things that it would be well for young and old to remember.

In the evening Dr. Fletcher addressed the members of the Society and their friends, to the number of about 400. The Mayor, Mr. J. A. Stewart, opened the meeting with a short address, setting forth the aims and objects of the Society and the benefits derived from membership. Dr. Fletcher then spoke a half hour on "The gardener's insects' enemies." This was extremely interesting and instructive. The Doctor's address on this subject is not nearly as bloodthirsty as one would think from the title. In fact I think he would rather preserve the lives of the innocent insects than to destroy them; but in the meantime he gave us many practical hints in the best ways to preserve our fruit and flowers. He divided the insects into two classes; those having mouths with which they devour the foliage, and those having suckers, by means of which they sap the life of the plant from within. Dr. Fletcher then described thoroughly the use, and the way to use coal oil, paris green and insect powders as insect destroyers.

After this part there was a short musical programme, when Dr. Fletcher continued his discourse, taking for his subject "Some plants worth growing." He took up the four plants we are distributing, also the "Golden Glow."

Without doubt these meetings are splendid things, and great good should result from them. Dr. Fletcher reached 900 people yesterday, and turned their thoughts in the right direction for this season of the year.

A. W. GOODMAN,
Secy. Perth Hort. Society.

April 20, 1901.

PLANT DISTRIBUTION FOR 1901

FRUIT.

A. CUMBERLAND RASPBERRY, TWO PLANTS.

Described by the Introducers as follows:

This new Raspberry originated nine years ago with Mr. David Miller, a life-long horticulturist and fruit grower, who thoroughly tested it under all conditions. It is offered with the assurance that it is *the most profitable and desirable market variety yet known*, because of its *immense size, firmness and great productiveness*, well entitling it to the designation of "*The Business Black-Cap*." It has undergone a temperature of 16 degrees below zero, unprotected, without injury—a temperature which badly crippled similarly situated plants of Gregg, Shaffer, Cuthbert, etc. It is of wonderful productiveness, producing regularly and uniformly very large crops. *In size, the fruit is simply enormous*, far surpassing any other variety. The berries run seven-eighths and fifteen-sixteenths of an inch in diameter. In quality it is similar and fully equal to Gregg. Although extremely large, it is unusually firm and is well adapted for long shipments. In ripening it follows Palmer and precedes Gregg a short time, making it a midseason variety. It is an unusually strong grower, throwing up stout, stocky canes, well adapted for supporting their loads of fruit.

It is thought to be a seedling from Gregg, with a dash of blackberry blood in it. The Cumberland is a true raspberry, but it may be of interest to state that several seedlings from the Cumberland have had true blackberry foliage.

J. W. Kerr, Denton, Md., a well known horticulturist says:

"There is no horticultural effervescence in me; otherwise, I would bubble over or burst when I look at the fruit on those three plants of Cumberland Raspberry. I have grown Mammoth Cluster and Gregg that were very fine, **but this Cumberland is really a marvel.** Fifteen-sixteenths of an inch diameter was the measure of as large a berry as I saw of it, but they were all large. I let all the plants carry all the fruit they set, and they were very full. If this season's behavior is a safe criterion to judge by, I pronounce it vastly superior to any Black-cap I know anything of. I never knew any of its type to be so long in form as it is."

FLOWER.

B. SPIRÆA JAPONICA BUMALDA, ANTHONY WATERER

The Rural New Yorker says of it:

The most satisfactory Spiræa in existence; a constant bloomer. The plant is of low growth; the umbels of a bright pink color, brighter than those of its close relative, Bumalda. A profuse bloomer. Introduced there a few years ago.

Mr. Wellington says of it:

"Am also sending bloom of Spiræa Waterer. Quite a sight in nursery row and they bloom till frost comes."

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1901 in before the end of 1900. We want to make the first year (1901) of the new century a **record breaker** for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are **new** and **valuable**.

Any person sending in two names and two dollars, may have an extra plant in place of commission, and thus have for himself both the Spiræa and the Raspberry.

New Subscribers sending in one dollar for the year 1901, may have the balance of the year 1900 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

Remember the old proverb, "First come, first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants of trees from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.

PLEASE NOTICE that the descriptions above are by the introducers. We expect our readers to test them and report where these novelties are as described.





FIG. 2069. THE SNEED PEACH.

THE CANADIAN HORTICULTURIST

VOL 24

1901

No 6

* * JUNE * *

THE SNEED PEACH.

A promising early variety for home use and near markets.

ORIGIN ; Tennessee, by Judge Sneed, of Memphis, about 1880, from a pit of the Chinese Cling.

TREE ; vigorous, but slender in young growth ; productive, an early bearer.

FRUIT ; medium, about 2 x 2 inches in diameter, roundish oval, slightly one-sided ; skin, light greenish white, with red cheek, and short thick down ; cavity narrow and deep, with distinct suture, and a small pointed apex, in a slight depression.

FLESH ; semi-cling ; color, yellowish white at maturity ; texture, tender, fine, very juicy ; flavor mild, vinous, pleasant.

SEASON ; July 20th and 30th, 1900.

QUALITY ; dessert, good.

VALUE ; home market, fair ; distant market, useless.

THE earliest peach to ripen in our experimental orchard at Maplehurst, in 1900, was the Sneed, which began to mature about the 20th of July. At one time there was great profit in early varieties. Thirty years ago we began with Early Purple, which ripened about the 20th of August. One season we had such good prices for that variety that we set quite a large orchard of it. The fruit was excellent if you ate it just at the nick of time, but alas ! if you left it an hour too long it was all juice, and could not be ship-

ped a mile from home. Then came Hale, which ripened about the 15th of August, and colored up so beautifully on the trees, but was so disappointing when you tried to bite it. Firm was it ? Why it would not get ripe enough to eat unless you knew just how to handle it, but usually it chose to rot first, in a large section, as suddenly as if struck by fire blight. But it sold well, and that was the chief consideration for the grower. Since its introduction we have many claimants before us as early varieties, such as Amsden's June, Early Canada, Louise, Rivers and Alexander, the latter of which ripens toward the end of July, and has a very attractive appearance, if well grown. But Crawfords, and other better varieties from the South and from California began pouring into our markets by cold storage from Florida and Southern California, and thus crowded out our inferior varieties of early peaches, until it now scarcely pays us to grow them at all in the commercial orchard.

The Sneed adds one more to the list of these early varieties, bringing in the peach season still earlier than Alexander. Last year it ri-


pened for the first time with us at Maplehurst, and it impressed us favorably as a dessert peach for the home garden, because of its tender, juicy texture and pleasant flavor. It is not a cling like the Hale, but only a semi-cling, like the Early Purple, which was always a favorite dessert peach, when fresh from the tree. The tree is a fine grower, and quite productive, and evidently an early bearer, for it produced its first fruit at three years of age. When ripe, the skin and the flesh are both creamy white, with a red cheek.

This peach would be wholly unsuitable for shipping to a distant market, as indeed are nearly all our early varieties.

The Sneed originated in Tennessee about 1880, and was named after the originator, Judge Sneed, of Memphis. It is a seedling of the Chinese cling.

Lourance, of N. C., wrote in the Rural New Yorker, last year, very favorably of this peach, as follows: "The Sneed is about ten days earlier than Amsden's June or Alexander; it is somewhat larger, ripens much better to the pit, is of excellent flavor, juicy and, when fully ripe, the skin readily peels off with the fingers. It has a large, full bloom, and therefore is not so easily killed by frosts. It is also rather late blooming."

PAN-AMERICAN HORTICULTURE—I.

UR second official visit to this grand exposition was made on Dedication Day, the 20th of May. Wonderful changes had taken place in the buildings and grounds in the month since our last visit, for then heads and trunks of statuary lay topsy-turvy and prospective elegance of architecture still revealed bare construction timbers. Now these are all in place and the magnificent, many-colored buildings now blend into one harmonious whole, in style a fine representation of the Spanish Renaissance, rich with sculpture and color decoration. One can well believe Mark Bennitt's statement in his "Illustrated Souvenir" that this great enterprise represents a total expenditure of \$10,000,000, not to mention the enormous value of the exhibits themselves.

Entering by belt line railway from N. Y. C. station, one is ushered through the Propylaea and its wings or colonnades, decorated with beautiful statuary, into the very midst of these magnificent structures; before you the Electric tower, 410 feet in height, a sort of guide to keep one from being lost, and in front of it the grand esplanade, where

thousands of people can be seated and watch the electric glory of the evening lights, which mark out the outlines of the buildings to people miles away on every side. On the east wing is a group of statuary by H. Adams representing "The Age of Enlightenment," expressing the progress of man from the savage to the enlightened state. Another group is "Heroic Music," by Kontè, showing the blind bard with the lyre and over him a winged female figure carrying the laurel branch, the whole expressing the conventional idea of heroic music. Cuts of these groups were kindly sent us by Mr. Bennitt, Chief of the Publicity Department.

We just hint on the general beauty of this marvellous exposition, because it emphasizes the importance of the opportunity here afforded of exhibiting our Canadian industries to the world. More attractive than the World's Fair at Chicago, more convenient of access to Canadians than any great exposition has ever been, there will be more Canadians at the Pan-American than at any former one, and we cannot stir up the national pride of our country in a more

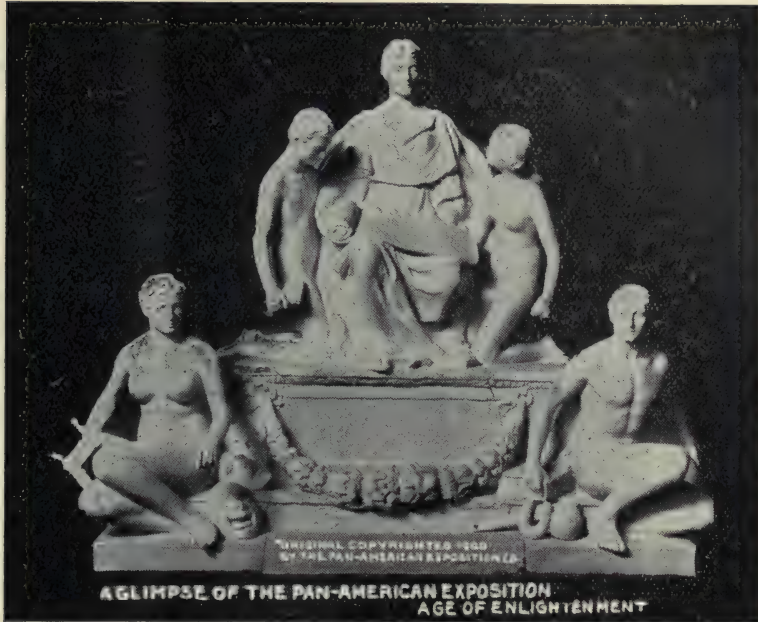


FIG. 2070.

laudable manner than by showing our products side by side with all others, and thus proving their superiority.

To the right of the esplanade after passing the Temple of Music, going south, you reach the Horticultural Building and Ontario's Court, near a grand entrance. Mr. Bunting, Mr. Robt Thompson and Mr. Collins were here to meet the public and give all information. The tables and arches were most appropriately designed and painted pure white; the tops of the tables were covered with a dark green cloth on which the white plates of fruit showed up beautifully. Fine white pillars stood around the whole space, and on the principal aisle faced the arches, the pediments of which were decorated with deer heads, and on the entablature of which stood out in bold relief "ONTARIO, CANADA"; the whole was surmounted by beautiful silk Canadian flags and Canada's coat of arms. The large pillars were utilized to show bottled fruit and pickles, and pictures of Ontario fruit farms, while the trophy erected



FIG. 2071.

in the centre was most attractive with its exhibit of culinary fruits in glass jars.

"The whole of this installation was erected by Ontario workmen," said Mr. Bunting proudly, "and only at six o'clock on Saturday night did the workmen finish the work, and then we had all the work of setting out our exhibits still to do." Well it was creditably done, if it was done in a hurry; and the apples, placed in cold storage last fall, came out for the most part in perfect condition. With the apples, some two hundred bottles of domestic canned fruits in glass, and an exhibit of pickles from Bow Park Farm, Brantford, the fruit exhibit will command its full share of attention until strawberries and other fresh fruits begin to come in.

LIST OF EXHIBITS.

The following is a list of the principal exhibitors of fruits and decorations as set forth on the 20th of May.

FRUITS.

Department of Agriculture,—American Pippin, Baldwin, Ben Davis, Blenheim, Bottle Greening,

Grimes' Golden, Russett Holland Pippin, King, Canada Red, Cranberry Pippin, Fallawater, Mann, Ontario, Red Russett, Snow, Stark, Spitzenburg and Winesap. Other varieties to be added from time to time.

A. A. Leslie, of Aylmer, sends a collection of apples from fourteen contributors at Sparta, Gravesend, Lakeview, Copenhagen and Bayview, each giving two or three varieties.

W. Richards, of Newcastle, shows twenty-nine plates of choice Northern Spy.

S. B. Morris, of Rodney, Spys and Baldwins.

Robt. Thompson and W. H. Bunting, of St. Catharines, King, Snow, Greening and Wagener apples and Keiffer pear.

Albert Pay, of St. Catharines, Spy and Baldwin; and James Titteringtoe shows Fallawater.

G. C. Gaston, of Craighurst, canned fruit, shown at Industrial, Toronto.

W. H. Bunting, collection of canned fruits from various contributors.

Shuttleworth & Harris, Bow Park, Brantford, pickles in jars.

DECORATIONS.

Ernest Hack, Grantham, the White Owl that surmounts the trophy.

E. J. Lovelace and Dr. Kilmer, the deer heads on the pediments.

Dr. May, Frank Coy, Albert Pay and R. Thomson, St. Catharines, the deer heads on the pillars.

Dr. Comfort, of St. Catharines, stuffed birds, and Frank Coy, a hunting scene, etc.

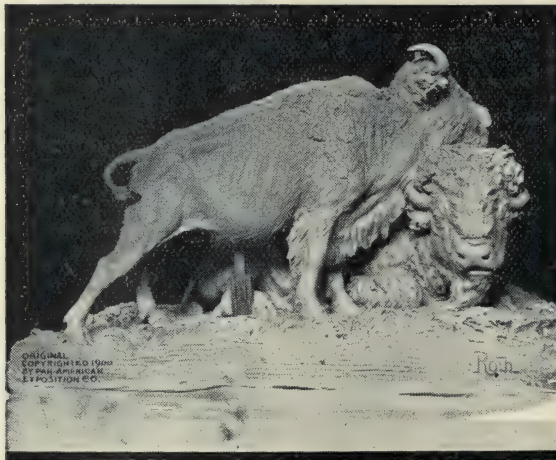


FIG. 2072. KING OF THE FOREST.

CENTRAL EXPERIMENTAL FARM NOTES—XVII.

THIS has been a very favorable spring for garden and orchard work. There was no frost in the ground to delay operations when the snow disappeared, and since that time the weather has been all that could be expected. The only frost that has been recorded since early in April was on the 20th of that month, when the temperature was 31.3° F. Since that time there have been several white frosts which the thermometer has not recorded. There were warm days during the last week of April and the first and second weeks of May, the highest temperature in April being on the 28th, when it was 79.8° F. In May the highest, so far, was on the 8th, when the temperature rose to 81.2° F. There has been comparatively little rain during the past month, but to-day there is a heavy downfall.

Everything is well advanced at this date, May 17th, and the season is more than a week earlier than last year.

Now that the leaves have expanded and the flowers are opening, a better idea can be obtained of how the various trees, shrubs and herbaceous plants wintered than it was possible to have a month ago; and it is also much easier to predict what the crop of fruit will be.

There were few deaths from winter killing in the apple orchard and the trees are now looking well. A large number of trees were affected by blight last year, and while the terminal growth in many cases was not destroyed, the fruit spurs were killed; as a result, the crop of apples on the trees will be small. Trees which were not blighted and which did not fruit heavily last year will probably bear good crops. The apple crop on the whole will be below the average. The American plums have bloomed very freely and there will likely be a heavy

crop of them. There will, however, be no European plums, as the flower buds were killed. The hardier cherries came through the winter well. The flower buds on all the trees, however, were practically all killed. There was evidence that the bloom would have been heavy, as the buds on the branches near the ground which were covered with snow were uninjured and there was a good show of bloom. Grapes were uninjured and are looking well. Some varieties of raspberries wintered well, while others were more or less injured. Golden Queen was killed to the ground and Cuthbert was considerably injured. Strange to say, the Shaffer under the same conditions, never looked better. The blackberries, also, came through the winter better than usual. Strawberries are exceptionally good and the prospects are very bright for a fine crop of this fruit. Ornamental trees and shrubs are looking well and the injury to the tenderer things was probably about the same as usual, with the exception of some of the evergreens, which were badly browned. Trees of the Ontario apple were again badly injured by winter. Mr. Harold Jones, of Maitland, Ont., reports that at the St. Lawrence Fruit Station this variety is quite hardy, and it may succeed in more sheltered places near here, but is not safe to plant.

There are few early blooming shrubs which are hardy here, and on this account attention should be drawn to *Spiraea arguta*, a comparatively new species which is not generally known, but which is very beautiful. This species somewhat resembles *S. thunbergii*, but is of much more graceful habit and has the advantage of being quite hardy. It began to bloom this year on May 12th, when the bushes were simply covered with small white flowers. Maule's

FIG. 2073. RUSSIAN COLUMBINE (*AQUILEGIA OXYSEPALA*).

(Photo, by F. T. Shutt.)

Japanese quince (*Pyrus Maulei*) is another hardy shrub which should be in every garden where *Pyrus Japonica* is not hardy. The flower buds of this species have never been injured by winter here and the flowers are large and of several shades of red. It blooms about the middle of May.

In the year 1887 a large collection of seeds was obtained from St. Petersburg, Russia. Among these was a Columbine which came under the name of *Aquilegia oxysepala*. This species, which has been grown here for fourteen years, is still as fine as when first introduced. The flowers are very large and are of a rich shade of bluish-

purple. The plant is a very free bloomer and as it flowers early in the second week of May, when there are few other plants in bloom, except bulbs, it is especially desirable. Most columbines are difficult to keep pure, as they cross very readily, but as this species blooms so early it is self fertilized.

We had good success this year in forcing parrot tulips in the house and have decided that we shall never be without them in the future. They do not make very good pot plants, as they are not stiff enough, but as cut flowers they are fine, the blooms lasting for two weeks if the room is not too warm. They are more difficult to force than the

early tulips and should be kept back as long as possible. As about half of the bulbs do not bloom they should be planted rather thick in large pans, pots or boxes. The double tulips are also very satisfactory for forcing in the house and succeed better than outside. Some of the best are: Murillo, Couronne d'or and Imperator rubrorum. Murillos when well grown in the house and fully expanded have measured nearly six inches in diameter. If the house is not too warm the flowers of double tulips will last from ten days to two weeks.

The perennial border is often bare looking

after the spring bulbs have done blooming, but we find that the border may be kept bright by growing Iceland poppy, the seed of which should be sown broadcast. This beautiful poppy makes a fine show of colour until other flowers begin to bloom. They also take away the patchy appearance of a border which has but a few clumps of perennials and fill up the gap until the annuals begin to flower.

W. T. MACOUN,
Horticulturist.

Central Experimental Farm,
Ottawa.

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE.—IV.

THE BUFFALO TREE-HOPPER.

FRUIT-GROWERS during the spring pruning of their orchards frequently come across limbs disfigured with oval-shaped scars (Fig. A) which are decidedly injurious to the tree. Frequently the affected limbs break off during strong winds, and as the grubs of borers are often found in these broken limbs, the inference is too often made that the borers are the mischief-makers. The real cause of the scars, however, is a greenish bug about one-third of an inch in length, triangular in shape, and with some slight resemblance to a buffalo, hence the name—*Buffalo Tree-Hopper*. (Figs. C and D).

In late summer and autumn, it is often possible to catch these tree-hoppers, or to watch them at work depositing their eggs in slits on the twigs. My illustration (Fig. B) shows the slits, not at the time of deposition, but in the spring when the scars have become quite large and unsightly.

The females deposit their eggs on young wood in late summer, preferring but little the two or three years old growths on young trees to those on old trees. The curved slits are made close to each other, enclosing a portion of bark, and in each of these slits six or more eggs are laid. The purpose of the double slit is apparent, for if only one were made the eggs deposited in it would almost certainly be damaged by the subsequent rapid healing process. With the two slits, arranged as they are, the enclosed portion of bark is killed, and the eggs are preserved from injury by any subsequent growth.

The eggs remain over winter in the slits and hatch about the first of June. During the winter and following seasons the slits gradually widen, and the scar becomes oval in outline on account of the dropping away of the enclosed central piece of bark.

It would appear that the Buffalo Tree-Hopper does not confine its attentions to apple and pear, but will produce scars on

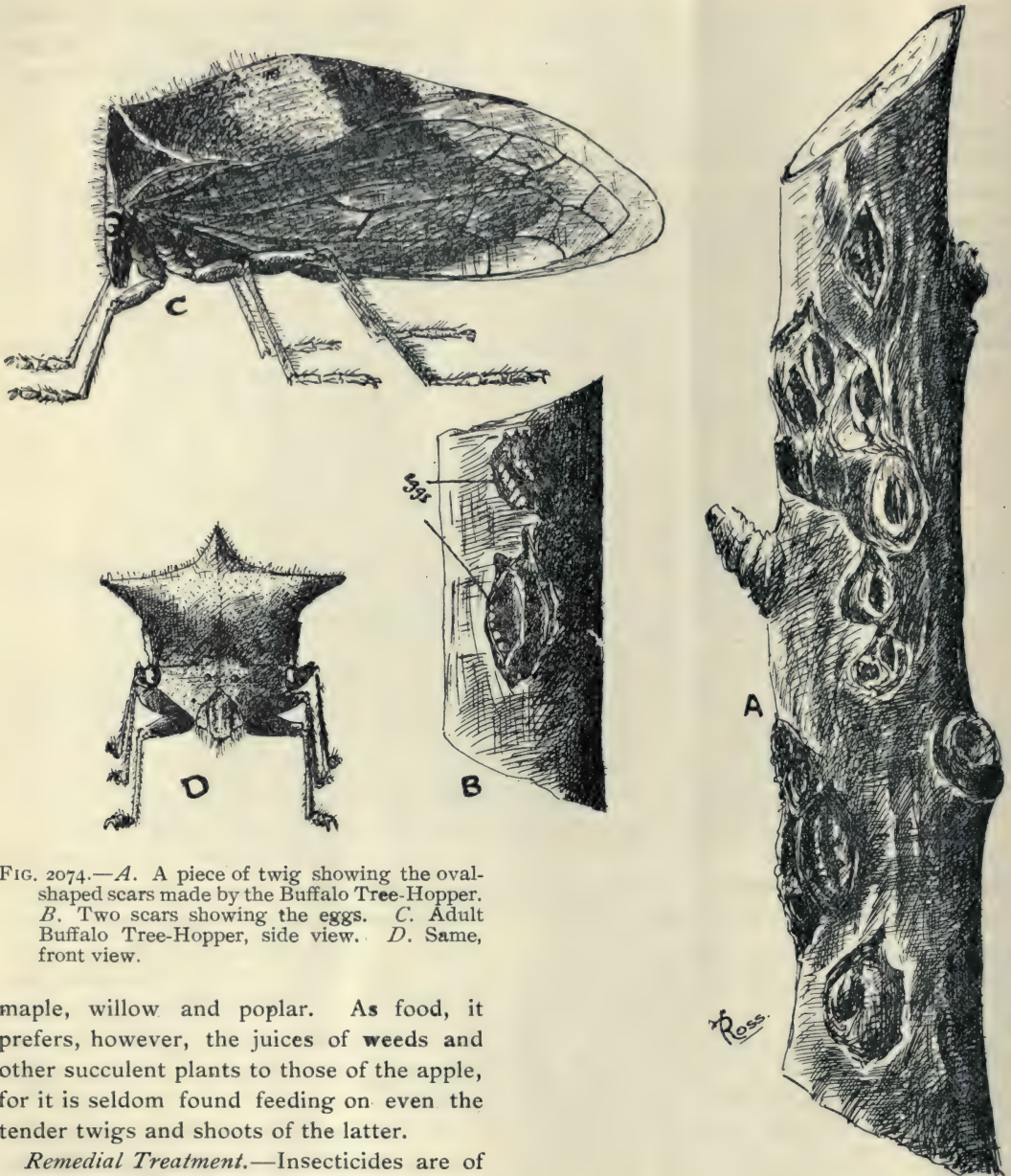


FIG. 2074.—A. A piece of twig showing the oval-shaped scars made by the Buffalo Tree-Hopper. B. Two scars showing the eggs. C. Adult Buffalo Tree-Hopper, side view. D. Same, front view.

maple, willow and poplar. As food, it prefers, however, the juices of weeds and other succulent plants to those of the apple, for it is seldom found feeding on even the tender twigs and shoots of the latter.

Remedial Treatment.—Insecticides are of little value in diminishing the severity of the attacks of the Buffalo Tree-Hopper. The best treatment is to remove and burn all affected twigs and branches during the season of pruning, as the eggs will then be destroyed.

Clean culture, by which weeds and other plants on which the insects feed are de-

stroyed, will also aid appreciably in reducing the number of the pests.

MORE ABOUT THE SAN JOSE SCALE.

Every year brings to light some new feature in the treatment of the San Jose Scale. Last year the value of crude petroleum was clearly proven; three or four years ago,

potash whale-oil soap, and kerosene were first used with success in large operations. Contradictory results, however, were often obtained by different experimenters, and even by the same experimenter, results which could not be satisfactorily explained. For example, in the hands of some fruit-growers pure kerosene proved beneficial, while in the hands of others it was deadly to the trees. Crude petroleum, too, gave conflicting results, but when a straight paraffin crude petroleum, having a specific gravity test of 43 degrees or over on Beaume's oil scale, was used by Dr. J. B. Smith, of New Jersey, uniform success attended the application. It seems that the term "crude petroleum" is applied commercially to a great variety of unrefined oils widely different in their compositions, hence when used as an insecticide the term should be specific.

Again, in a recent bulletin, prepared by H. P. Gould, of Maryland, the reason for so many failures with kerosene is plainly stated. Mr. Gould shows that 20 per cent. kerosene *cannot be used on peach trees when they are perfectly dormant without serious results*; but that, as soon as the activities of the tree begins in spring, spraying with 20 per cent. kerosene should be commenced; that there is no necessity for using a stronger mixture than the 20 per cent.; and that peach trees may be sprayed with the 20 per cent. mixture with comparative safety during the summer when the young are crawling.

It is interesting to note that the results secured by Gould coincide largely with those obtained in the series of experiments carried on during January and February, 1900, by Mr. G. E. Fisher and myself, and by Mr. Fisher later on in the season. My notes on these experiments, based on a study of the

winter buds and San Jose Scales while the trees were still dormant, bring out the fact that in nearly every case the buds of the trees—apples, pear and plum, as well as peach—were destroyed when 20 per cent. kerosene and water was used.

Mr. Fisher, in his report of the Inspector of San Jose Scale for 1900, states: "As a winter treatment I regard kerosene as being more liable to injure trees than any other remedy with which I have acquaintance. It is not so fatal to fruit buds as soap applied in early winter, but so far as has been observed the effect on trees was almost invariably disastrous. It was used in a mechanical emulsion in the proportion of 20 per cent. with water, which was not so effective as an insecticide, and cannot be said to do even satisfactory work in killing the Scale."

The conclusions reached by Mr. Fisher regarding the value of 20 per cent. kerosene as an insecticide appear at variance with that of Mr. Gould, but it may be noted that Mr. Fisher did no spraying while the trees were active, and Mr. Gould does not report the effect of the kerosene on the Scale while the trees were dormant.

Regarding crude petroleum, Mr. Gould summarizes his results:

1. Crude petroleum seems to be effective in controlling San Jose Scale when properly and intelligently used.

2. Either a green or amber-colored oil may be used, provided it has a specific gravity of not less than 43 degrees at a temperature of 60 degrees Fahr.

3. It can only be used when the trees are dormant. In this respect crude petroleum and kerosene act directly opposite. (This applies especially to peach trees.)

4. It may be used either undiluted or in the 20 or 25 per cent. mixture.

W. LOCHHEAD.



FIG. 2075. GARDENS OF THE PALACE OF LUXEMBURG.
(Photo. by A. L. Saunders.)

NOTES IN AND ABOUT PARIS.

IN September, 1900, it was our pleasure to spend most of that month in France and more especially about Paris, which is a beautiful white city without any smoke to spoil its buildings or to interfere with one's comfort in any way.

The climate in September proved very enjoyable, being clear and warm, with very little rain, so our time was spent in constant sight seeing through the city and about the river, which is clear and very attractive, with so many beautiful bridges and boats in every direction every few minutes, making it very convenient for travellers.

The older parts of Paris are very interesting, and one sees quite a different life about Notre Dame among narrow streets crowded with goods and poor people on the side-

walks, from what you can see about the Arc de Triumph. This is a most beautiful arch and here many of the finest avenues in the city meet, here the fashionable people live and have their homes and here the driving, on a fine afternoon, is a great sight.

One of the greatest places of interest in the older portion is the Palais de Luxembourg and the beautiful gardens (Fig. 2071), connected with it, containing so many trees and flowers and fine pieces of statuary. The terrace can be seen in the picture with the two levels of the grounds, the lake being on the lower ground. All travelers visit these grounds and the palace itself is very old and contains much of interest.

The homes of the rich in Paris are built nearly always on the street line and are not



FIG. 2076. ENTRANCE TO BARON ROTHSCHILD'S ESTATE.

attractive, but if one can enter through the iron gate into the court yard behind, there is often a beautiful garden to be seen, as shown in this picture.

On September 29th, while we were still in the city, we were favored with an invitation from Col. G. B. Brackett, who had charge of the fruit exhibit of the United States at the Fair, to join a party and visit Baron Alphonse Rothschild's estate at Ferrières, twenty miles from Paris. (Fig. 2076.) We had a most delightful day in that splendid estate, which covers an area of six by twenty miles, the greater part being used as a game preserve, with deer and other animals, as well as wild birds in great abundance. Twelve hundred acres of this is maintained as a most perfect park, where a vast number of trees and shrubs have a home. Great masses of rhododendrons, laurels, yews, hollies and many other tender things grow there, healthy and strong. A very large clump of cedar of Lebanon formed a lovely picture near the mansion, with its dark green heavy foliage and the long leaves hanging from the branches were very beautiful. The mansion, as shown in the picture, is very fine, and many fine trees and shrubs are planted near it. (Fig. 2078.)

This park is most beautifully kept and everything is in the highest state of cultivation, thousands of shrubs and trees and nothing in the least deformed or unshapely, and plenty of room allowed for all to grow in their natural forms and habits. The beautiful lake near the mansion, shown in Fig. 2077, is also kept in perfect order and is skimmed several times a day by men in boats to keep the surface bright and clear of fallen leaves, which are so numerous in September. This lake is the home of the wild water birds in the park, as are also the ponds near by, and adds a great deal to the beauty of the park. The tropical plants and large flower beds about the mansion are very effective.

About four hundred men were employed on these grounds and all parts of the grounds were in the most perfect order everywhere. There was a good aviary with several buildings constructed to suit the birds. The fruit garden was very attractive; forty men were employed and we saw a great collection of pears, peaches, nectarines and apples, mostly in full fruit and very tempting to hungry travelers. Many trees were trained against walls, while others were grown as cordons, espaliers and pyramids, and nowhere could a thing be seen



FIG. 2077. GLIMPSE OF LAKE AND CEDARS.



FIG. 2078. BARON ROTHSCHILD'S CHATEAU.

out of place, the care taken was so perfect, and the trees were laden with ripe fruit all

through. The vegetable garden was also very fine, with many hot-beds for tender things, as well as vegetables out of season. There were also commodious greenhouses for roses, orchids, ferns, carnations, palms, and all plants needing special care and special temperatures, with houses for raising plants and flowers for bedding out.

As it had never before been our good fortune to see such a lovely park and so perfectly kept, our day there was one of the brightest and best in all our travels.

ANNIE L. SAUNDERS.

Central Experimental Farm,
Ottawa.

THE AMERICAN POMOLOGICAL SOCIETY holds its 27th annual session in Buffalo, N. Y., Sept. 12th and 13th.

As Buffalo is close to the famous fruit districts of Western New York, Eastern Ontario, Northwestern Pennsylvania and Northern Ohio, it is anticipated that the local attendance will be large, and that the opportunity to visit these interesting regions under favorable circumstances will be embraced by many of the members from a distance.

A program covering subjects of general and vital interest to fruit growers and consumers throughout the country is being arranged, the details of which will be announced in due time. Meanwhile members are invited to inform the secretary regarding any subjects of general interest that are of special importance in their respective sections of the country.

As a better understanding of the relations of bee keeping to fruit growing is believed to be important to both industries the National Bee Keeper's Association has been

invited by the Executive Committee to join in one of the sessions for a discussion of the various practical phases of that question. This invitation has been accepted, and a joint session on this subject will be held at some time during the meeting.

Members of the Fruit Grower's Association of Ontario, desiring to attend this meeting, may receive from the Secretary a certificate of such membership, for presentation at this meeting, if desired.

The facilities for the display of fruits entered in competition for Wilder medals will be excellent, as the Exposition authorities have tendered space for the society exhibits in the Horticultural Building of the Exposition. Such exhibits will also be eligible to Exposition awards. Members who have promising new fruits or fine collections of standard varieties which they desire to exhibit are therefore urged to plan to attend the meeting and to make the best possible showing of their products, taking advantage of the rare opportunity offered.



A CLASS DINING ROOM.



ARTHUR W. BROWN
1900

TWENTIETH CENTURY EDUCATION.

THE members of our affiliated societies will be much interested in a new plan of co-operative work which was presented before a large gathering of Grimsby people at Maplehurst, the home of the secretary, one Thursday in May, by Mrs. John Hoodless, of Hamilton. The subject of her address was "Twentieth Century Education," and in it she pointed out the weakness of the university training for girls, in that it withdrew them too much from sympathy and touch with any kind of real productive industry; and of the school system of Canada in that it led the student too much into a mere preparing to pass an examination, without much regard to the educational benefits of the course.

The methods of the manual training of Domestic Science Schools, lead the student to study with the thought of immediately putting that book work or lecture to a practical test. At the Normal School of

Domestic Science, Hamilton, young ladies are now being prepared to become teachers, and as fast as these young ladies graduate they are at once employed in either public or high schools, conducting certain classes in this department.

As an outcome of such training, Mrs. Hoodless claims that a large number of the now unemployed women of Canada and England will be in a fair way of becoming producers, as a result of their training. To still further favor this scheme, she seeks special provision for women at the O. A. C., Guelph, where, in addition to a thorough education in the principles of agriculture and horticulture, they may be taught such practical work as egg packing, fruit packing, preparing fowls for shipment, etc., so that our produce could be exported to the great markets of the world in such a condition as to command the highest prices.

In furtherance of her philanthropic pur-

pose, Mrs. Hoodless also brought before us the objects of the Women's Agricultural and Horticultural International Union of England, which are as follows:—

1. To form a bond between women in all countries who are engaged, whether directly or indirectly, as employers or employed, or as working amateurs, in

(a) Farming, dairying, poultry-keeping or bee-keeping;

(b) Fruit or flower growing for profit;

(c) Laying-out of grounds, forestry and the management of estates.

2. To circulate useful information, and to compare the methods of different countries and districts.

3. To advise as to training, and to make known openings for obtaining employment, and for the disposal of produce. Members can also consult each other:—For example, one intending to settle in Canada could write to a member here, and get information at first hand.

4. To endeavour to secure an adequate rate of payment for women employed in any of the indicated lines of work. To uphold the highest standard of work.

Those desirous of joining the union as members must send in their names to the honorary secretary, stating in what branch they are engaged, and enclosing the names and addresses of two referees as to their qualifications.

The rates of subscription for such members are: 2s. entrance fee, and 2s. 6d. per annum. All employers, amateurs and others interested in the objects of the union, are classed as honorary members, and pay 5s. per annum. Donors of £5 are life members. *Subscriptions are due on January 1st.*

Membership entitles to advice from the executive committee; to the receipt of such papers or reports as are issued periodically; to advice as to the disposal of produce; and to assistance in finding employment.

The papers circulated by the union will contain lists of members, and of appointments obtained by

women, articles by experts in various countries, correspondence, reports of the honorary secretary, and matters of general interest bearing on subjects coming within the scope of the union.

The council meets twice a year, the executive committee at its own option. The latter is re-elected annually. New members of council can only be elected at council meetings, and must be duly nominated and seconded.

A general meeting is held annually in May or June, in London.

Non-members corresponding with the honorary secretary or executive committee, without any intention of joining the union, must pay 1s. fee.

Mrs. Hoodless proposes that each of our affiliated Horticultural Societies, and each Woman's Institute be allowed to take one membership for the society, thus bringing the membership in touch with the union, and in sympathy with its work; and forming an organization for receiving the publications and the visiting lecturers of the union.

This might result in the direct sale of produce, properly packed, by members of the societies in Canada to members of the union in England, or to trade with persons recommended by those members.

We wish Mrs. Hoodless every encouragement in her work. She is a charming speaker, her addresses are listened to by every one with the greatest attention and interest, and we hope to induce the Department of Agriculture at Toronto to send her out to address all our affiliated societies next season.

ADVANCES IN PLANT BREEDING.

IT IS astonishing how much there has been said and how much there has been written during the past twenty years on the subject of hybridizing of fruits and of plant breeding in general. It is also surprising in the face of this that such small advances have been made in the way of systematic production of improved varieties of fruits. Aside from the great work of Burbank

of California, the work of some other plum specialists in the south, and the monument which Rogers raised up to himself when he originated that remarkable array of hybrid grapes, there has after all been very little done in this interesting and fascinating field. However, it is cheering to note that now and then some one does work a period in the work by the production of a fruit

better in certain respects than anything which we have. Such has been the case quite recently. At the last meeting of the Eastern New York Horticultural Society there was on exhibition a very striking collection of apples, natural crosses between Spy and Newton Pippin, and Greening and Newton Pippin. These were the result of patient effort on the part of Stephen Underhill, of Croton Point, on the Hudson. The Newton Pippin trees were surrounded by several other varieties. Seeds of the Newton Pippin were planted in every case. The young seedlings were carefully reared, and in due time bore fruit, which was remarkable in the fact that it had exhibited all gradations between the female parent on one side and the variety which probably furnished the pollen on the other. In this way there were some varieties which very closely resembled Newton Pippin. Others as closely resembled Northern Spy. One of these latter appeared to have considerable value. It was a Spy in color and size, but lacked the characteristic ribs of that variety. The flesh had the crispness of the Newton Pippin with some of the spiciness of the Spy. Its principal point of value lay, however, in its keeping qualities. As a rule the Spy is not a long keeper, as ripened on the Hudson. This variety, however, is said to keep easily until mid-winter or later. Its bearing qualities have yet to be proved.

Another interesting collection of apples, illustrating the fixity of certain types, consisted of a number of seedlings of the old Lady apple. It is well known that the Lady is one of the oldest types of apples in cultivation. It is found in all the European pomological works, and as a proof of its ancient origin has probably more synonyms than perhaps any other variety of apple grown. On account of its antiquity one would expect the type to be pretty well fixed. This surmise is strongly supported by the fact that in this collection of ten seedlings there was in every instance a strong resemblance to the parent. Some of them were exact reproductions. Others were a little larger, a few lighter colored, and one or two exact Lady apples, only improved in size and color. How much might be done in this way if fruit growers would take the trouble to follow the advice of the late Marshall P. Wilder, who said in one of the last addresses given to the American Pomological Society, "Plant the seeds continually of our largest and finest fruits. Watch the product, select the seed from the finest and plant again." In this way only can those closer adaptations to suit any climate so necessary to the production of fruit of the highest quality be satisfactorily brought about.

JOHN CRAIG.

Ithaca, N. Y.


PRUNING THE ROSE BUSHES should be attended to in May, but if neglected then, attention should even yet be paid to this work. It is the new wood that alone produces bloom, and for that reason, it must be encouraged. Vick says in his Magazine :

It is an astonishing thing to see how that, year after year, the chances of obtaining the most beautiful rose blooms are frittered away through unintelligent pruning of the plants, even in gardens of great reputation. There are thousands of rose bushes all over the country which, in spite of being found in spring to have made fine growth during the previous season, never produce good flowers,

and the explanation is generally to be found in the fact that no reasonable plan is followed in pruning.

The commonest mistake is the leaving of the older branching spray wood that has already flowered. Dwarf Rose bushes at the beginning of the year generally consist of several much-branched stems which carried bloom in the previous summer, add several strong straight shoots springing from the base of the plant. In the case of hybrid perpetuals, these older branching stems should be cut completely out, leaving only the new shoots from the base which themselves should be then considerably shortened. If the old spray wood be left in it produces no flowers worth having, while the weak and crowded growths with which it becomes covered afford a perfect harborage to every known Rose pest.

THE FRUIT AWARDS AT PARIS.

IR,—I feel that it is scarcely fair to hold back the list of awards made by the jury on fruits at the Paris Exposition last year. In handing this list to you, I do so with this explanation and caution, that while all these awards were actually made upon the dates given by the jury of group 8, of which I had the honor to be a member, the whole had to be revised or confirmed by the superior jury, whose movements and action seems to be not only slow, but uncertain. Before leaving I could not obtain this confirmation, though I made many attempts to do so, nor could I obtain any good reason why it should not be granted.

I now give the list for publication in fairness, not only to exhibitors, but to myself. The supreme jury may eventually confirm these, as they should in fairness, or they may cut out as many as they desire and give no particular reason for so doing. In any event I am informed that it will be some months ere we can look for a final decision.

Besides these awards my predecessor, Mr. Hamilton, obtained all those made from the opening of the exhibition up to the conclusion held before Sept. 13th.

But if juries were unsatisfactory and slow there, they could not help knowing and feeling that Canada was able to hold her own against the world, especially in apples of finest form, color and flavor.

I frequently thought of discussions we used to indulge in at our meetings in years gone by, where the general sentiment went to show that in this province at all events we are growing too many apples, and that after satisfying the home demand we had no market but Britain. The fact is we have all Europe, and in order to satisfy that market our orchard capacity must be greatly

enlarged. But we must grow the quality required and to do this must get rid of enemies in insects and diseases. The fruit grower must no longer neglect his orchard if he intends to make profit. There is no use in shipping poor or even medium fruit to any market. I could buy Canadian apples at retail stores in the cities of Britain at as low a price as I would have to pay in any town in Ontario. I found cheese could be bought for as low a price and in some cases for less than at home and meat also. But mark you, all these Canadian products could only be had at low prices when the quality was inferior, these apples were spotted and wormy, irregular in form and color, and like the cheap cheese, off flavor. But fine apples, belonging to No. 1 brand, were high in price; good Canadian cheese was out of our reach in price, and prime beef, was all that the shipper could desire for profit. The poor article is not wanted in Europe, and has to be sacrificed to get rid of it.

While in Paris my time was mostly occupied in testing markets. I found abundant opportunity to enlarge our fruit market, but in order to fill my orders promptly I was compelled to purchase in Britain and repack for other markets, fearing that the Canadian shipper would not deliver such a brand as would inspire confidence in our product. I adopted mostly the bushel box, although I did sell some in barrels. To give such particulars as I could in detail of sales would occupy too much of your space. Suffice it is to say that, although Paris is not a good centre to work from, I was able to make connections sufficient to warrant me in stating most positively that our apples properly grown, selected and packed, will find a market in any country in Europe, owing to their superior quality generally over all

others. In the short stay at Paris I filled orders for France, Belgium, Germany, Norway, Sweden, Austria, Hungary, Egypt, etc. In all, my sales amounted to nearly 200,000 bushels. This was independent of sales in Britain, which of course were much larger.

If our Canadian exporters would learn a profitable lesson, let them cull and pack all their apples as you, Mr. Editor, did yours last year. Your packing was good all through, and your selection all that could be desired for any market. You tried many forms of packing, but to my mind the best for general use is to wrap every apple in paper and hand pack tightly in bushel boxes, using excelsior packing all round and in tightening layers.

The crop this season may be a very large one, at all events prospects tend that way. In such case it is well to keep the Government staff at the Glasgow Exhibition posted, so that they may prepare to handle the crop profitably. There is no better or easier point in the world from which our apple crop can be handled than Glasgow, and the staff there can easily take such orders for European countries as will ensure the handling profitably of our whole crop no matter how large it may be. Shippers should send in estimates early of probable quantities they will have for export, and, as the season advances, they should keep our friends in Glasgow thoroughly posted as to quantity and quality and form of packages. It is the lack of such information that makes the position of a fruit commissioner at such an exhibition often uncertain. He must have all the facts before him and feel that he can rely upon brands and know that there is sufficient to fill orders.

With careful culling and packing, our shippers can rely upon getting orders from Glasgow for direct shipment to most of the countries I have referred to, and thus ship only to Britain what is intended for their

own consumption. But we must be honest to ourselves as well as to our customers, and pack nothing whatever but the choicest samples, if shippers desire to make money and hold these markets, and save replacing charges and loss in culling at a British port.

ALEX. McD. ALLAN.

Goderich, Ont., May 6th, 1901.

LIST OF AWARDS.

Sept. 13, 1900—	Gold Medal.
Dominion of Canada, apple display	.....
Province of Ontario, " " " "	" " " "
" " " " " "	" " " "
" " " " " "	" " " "
Sept. 28—	
Dom. of Canada, display of apples and pears, " " " "	" " " "
Province of Ontario, " " " "	" " " "
Prov. of Quebec, " " " "	" " " "
" " " " " "	" " " "
" " " " " "	" " " "
L. Woolverton, " " " "	" " " "
Oct. 12—	
Dom. of Canada, {display apples, pears, } " " "	" " " "
Prov. of Ontario, " " " "	" " " "
" " " " " "	" " " "
" " " " " "	" " " "
F. G. A., Ontario, " " " "	" " " "
Pom. Soc'y, Que., " " " "	" " " "
F. G. A., Nova Scotia, " " " "	" " " "
Oct. 30—	
Dom. of Canada, display of export apples, pears, quinces; also apples from cold storage of 1899 crop, including samples packed in barrels, boxes and baskets of various sizes used by shippers for crop of 1900	..... Grand Prize.
Dominion of Canada, display of fruit of 1900, " " " "	" " " "
Prov. of Ontario, " " " "	" " " "
" " " " " "	" " " "
" " " " " "	" " " "
F. G. A., Ont., " " " "	" " " "
Pom. Soc'y, Que., " " " "	" " " "
F. G. A., of N. S., " " " "	" " " "
Canada, display of fruit in packages, Gold Medal.	

A gold medal was awarded the following Societies for contribution of fruits to make up the displays during the season: Grimsby Horticultural Society, Burlington Horticultural Society, Stratford Horticultural Society, Goderich Horticultural Society, Owen Sound Horticultural Society, all in the Province of Ontario; also the following in Quebec: County L'Islet Horticultural Society, Abbottsford Horticultural Society, Missiquoi Horticultural Society, Brome County Agricultural Society.

The following gold medals were awarded also: Agricultural College of Guelph, Dominion Experimental Farm, Ottawa; the Minister of Agriculture, Ottawa; the Ministers of Agriculture of Ontario, Quebec and Nova Scotia.

The following individual gold medals were awarded for special contributions of fruits: In Ontario—Dr. Wm. Saunders, Ottawa; A. McD.

Allan, Goderich; McKinnon & Sons, Grimsby; G. C. Caston, Craighurst; H. Curwin, Goderich; W. H. Dempsey, Trenton; W. Sanderson, Stratford; S. Furse, Goderich; A. C. McDonald, Dunlop; M. Burrell, St. Catharines; J. G. Mitchell, Clarksburg; W. M. Orr, Fruitland; A. W. Peart, Freeman; M. Pettit, Winona; Isaac Salkeld, Goderich; A. E. Sherrington, Walkerton; A. M. Smith, St. Catharines; W. Warnock, Goderich.

In Quebec—Auguste Dupuis, Village des Aulnais; Robt. Hamilton, Grenville; R. Brodie, Montreal; R. W. Sheppard, Como; W. Craig & Sons, Abbotsford; W. W. Dunlop, Outremont; G. B. Edwards, Covey Hill; J. M. Fisk, Abbotsford; J. M. Le Moyne, Compton.

Silver medals were awarded to the following individuals: In Ontario—G. W. Andrews, Blyth; Charles Wells, Goderich; H. Dempsey, Rednersville; Geo. Fowler, Goderich; R. L. Huggard, Whitby; E. H. Read, Port Dalhousie; A. H. Pettit,

Grimsby; John Tiffin, Goderich; Alex. Glenn, Carlow; N. Monteith, Stratford.

In Quebec—Miller & House, Quebec; C. P. Newman, Lachine Rapids; A. Aubertni, Cote St. Paul; Hon. Judge Caron, L'Islet; Asa Johnston, East Farham; J. A. Molson, Lachine Rapids; B. Renaud, Grenville; Rev. Peres Oblats, Lachine.

In Nova Scotia—C. C. Brown, Greenwich.

Bronze medals were awarded as follows: In Ontario—Thos. Acheson, Stratford; J. Beattie, Clinton; E. C. Beman, Newcastle; W. Bishop, Guelph; J. F. Brennan, Grimsby; J. K. Burt, Paris; Frank Dempsey, Albury; John Dempsey, Fairview; A. Grey, Burlington; L. L. Hagar, Grimsby; Horace Horton, Goderich.

In Quebec—Joseph Archambault, St. Linn; J. J. R. Bell, Knowlton; J. C. Chapais, St. Denis; Mme. Joseph Clontier, Quebec; James Currie, Montreal.

In Nova Scotia—G. W. Ripley, Napan.

THE STANDARD APPLE BARREL.

THE apple barrel being adopted by the Dominion is not exactly the one asked for by our association, but one holding about half a quart less. The following is the text of Section 4 of the Act which passed its first reading April 2nd, 1901:—

1. All apples packed in Canada for export for sale by the barrel in closed barrels shall be packed in good and strong barrels of seasoned wood having dimensions not less than the following, namely—twenty-six inches and one-quarter between the heads, inside measure, and a head diameter of seventeen inches, and a middle diameter of eighteen inches and one half, representing as nearly as possible ninety-six quarts.

2. When apples, pears or quinces are sold by the barrel, as a measure of capacity, such barrel shall not be of lesser dimensions than those specified in this section.

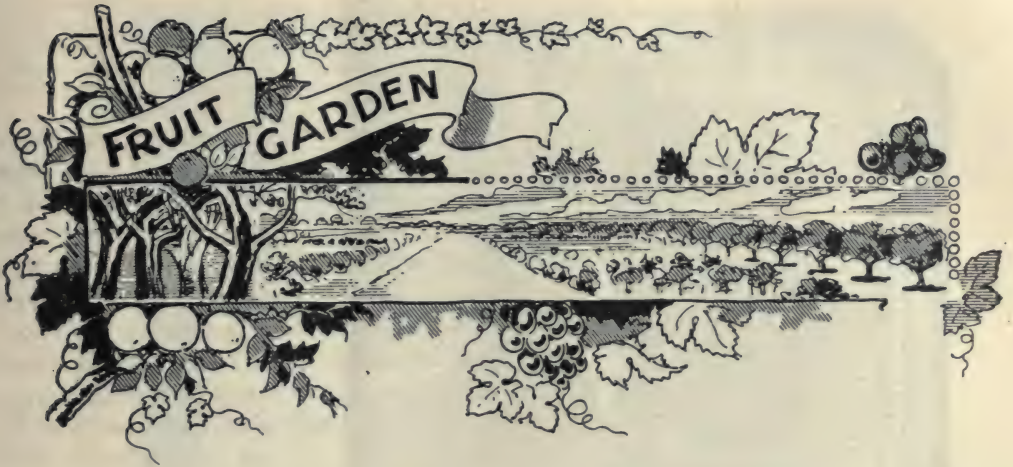
3. Every person who offers or exposes for sale, or who packs for exportation, apples, pears or quinces by the barrel, otherwise than in accord-

ance with the foregoing provisions of this section, shall be liable, upon summary conviction, to a penalty of twenty-five cents for each barrel of apples, pears or quinces so offered or exposed for sale or packed.

Mr. Wm. A. Taylor, Assistant Pomologist of the Department of Agriculture, Washington, writes as following regarding this barrel: "If the capacity of the Dominion standard apple barrel is 96.51 imperial quarts, then it is evidently about 100 quarts dry (Winchester) bushel measure, or approximately about six quarts dry measure less than the American apple shippers' standard barrel which has been adopted in New York. Your barrel is evidently of the same capacity as the pear, quince and potato barrel of New York, the capacity of which is 100 quarts.

BOULEVARDS.—A proposal has been made in Orillia, according to the Packet, to build the sidewalks outside the line of trees instead of the inside. The boulevards would then be between the fence and the sidewalks, and so would be effectively curbed and protected from the raids of the drivers of de-

livery wagons. People who took any interest in their property would also be compelled to keep the grass on the boulevard cut, as otherwise it would greatly detract from the appearance of their own lawns, of which it would virtually form a part.



HINTS FOR FRUIT GROWERS.

STRAWBERRIES.—With the month of June the fruit season begins with most fruit growers, for usually the strawberry begins about the second week and continues until about the end. The wise fruit grower will so plant his fruit crops as to keep up as nearly as possible continuous shipments throughout the summer, and thus provide for himself a steady income, and for his employees constant work.

It is surprising how slow the growers are in becoming acquainted with the many new varieties of strawberries, and instead of procuring those large, showy varieties which are described in the report of the Fruit Experiment Stations, or of the O. A. C., Guelph, they continue on with played out varieties which bring low prices in the markets.

Accounts with berry pickers form no small part of the work of management. If you trust each one to keep his own account you will often be cheated by the dishonest and by the careless, and if you give cheques for every lot brought in some will lose them, and others waste much valuable time counting them over. Stahl, of Illinois, gave in

Popular Gardening a design of bulletin board for daily accounts, which we copy with his description, hoping it may be of some practical use to Ontario small fruit growers. He says :

A bulletin board is erected just outside of the door of the receiving and packing room. For each day a paper is prepared, to be tacked on the bulletin board. Heavy book paper of the required size can be got at almost any job printing establishment. This paper is ruled with lines half an inch apart, and horizontal when the paper is on the board. Along the left margin there is a space ruled off for the numbers, next for the names of the pickers, and then a dozen or more spaces in which to put down the number of quarts brought in by each picker. Every picker has a number. This is important ; let the pickers be referred to by their numbers, not by their names.

The numbers on the paper begin with one at the top and come in regular order on the paper. Then any picker can at a glance find his or her record. No checks are used during the day. As each picker brings in a load, the number of quarts is marked in a space opposite the number of the picker. As an indelible pencil is used the pickers cannot accuse you of altering the record in their absence. As you put in the number of quarts in the presence of the picker there will be no over-sights or mistakes. The pickers have no checks over which to spend time in counting or disputing when in the field. But the entire record is open to any picker at any time during the day, when she comes to deliver berries. You can see at a glance how each picker is working ; or if you desire to know at any time how many quarts have been brought in you can foot it up in a minute.

Each evening the record is footed up, the total number of quarts brought in during the day by

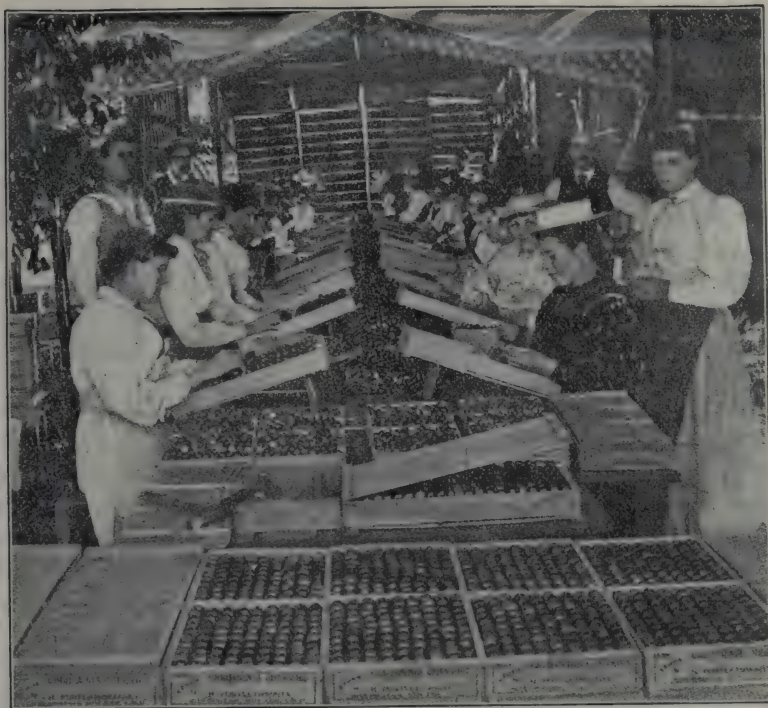


FIG. 2080. SCENE IN A CHERRY PACKING HOUSE AT SAN JOSE, CALIFORNIA.

are high and long ladders are needed. In the younger orchards, however, where the trees are smaller and can be reached by step ladders, we often employ women and girls, and find them excellent pickers.

In the packing house we employ women, for it is work they enjoy and they do it with excellent taste.

In the large cities we see the California cherries offered for sale in shallow boxes, holding about two layers, the top beautifully placed in regular rows, without a stem to be seen. Our engraving, taken from the *Fruit Trade Journal*, shows a scene in a cherry packing house at San Jose, California, where the fruit is being put up in these boxes.

The size of these boxes is, outside measurements, 18 inches in length, $10\frac{7}{8}$ inches in width, 3 inches in depth. Inside measurement, length $16\frac{1}{2}$ inches, width $10\frac{3}{8}$ inches, depth $2\frac{1}{2}$ inches. The capacity is 10 lbs of cherries.

It is an open question whether it would not be an advantage for us to adopt this package for our choice cherries.

REFRIGERATOR CARS have proved of great service to our fruit growers, enabling them not only to reach cold storage steamers with fruit for export, but also to reach the home markets with tender fruits in far better condition and at less cost than by express. The immense quantities sent forward from the Niagara district, for example, at one time so congested the service of the express trains that the goods were handled most carelessly. Now we can load a refrigerator car at leisure and forward by fast freight to such a centre as Ottawa or Montreal, and have confidence in the safe arrival even after a journey of forty-eight hours.

A great mistake is often made by overloading such cars. The hot air is driven to the top, so that there should be a space over the goods of about two feet, and, besides


this, there should be a space of $1\frac{1}{2}$ or 2 inches between the packages for the free circulation of the cold air. For want of attention to such provisions many large shipments have arrived in bad condition, and the car blamed for what was really the fault of the shipper.

THE BORDEAUX MIXTURE.—Early treatment with this remedy for fungi of all kinds should be faithfully persevered in, if the best

results are to be obtained, always remembering that it is a prevention rather than a cure.

The lime and copper sulphate solution should be made separately, with about half the amount of water required for each. Then the copper sulphate solution should be poured into the lime water, stirring vigorously all the time. Never reverse this operation and pour the lime into the copper sulphate.

EXPORT OF THE FAMEUSE APPLE.

T THE recent meeting of the Provincial Pomological Society at Huntingdon, P. Q., on the 31st of January, Mr. R. W. Shepherd read a paper on the exportation of the Fameuse apple, in the course of which he said :—

The facilities for exporting apples in cold storage, on board our ocean steamships, at the present time, are limited and quite inadequate. Rarely has it been possible, in my experience, to obtain cold storage just at the particular time when most needed. The fact is, that for the short season during which it is absolutely necessary to have cold storage in transit for Fameuse or other apples, the steamships are generally overcrowded with such commodities as butter, bacon, eggs, etc., which demand storage space throughout the whole summer season, and it cannot be expected that the companies will be able to provide space always for fruit, which takes quite a different degree of temperature from butter. Just here I wish to give my experience of a shipment of Duchess apples, sent to Liverpool in August last. The fruit had been picked rather on the green side, and packed in barrels was sent to the cold storage warehouse in Montreal about the 15th August.

On the 27th August, I engaged space by telephone for shipment in cold storage, and I supposed everything was all right. I gave instructions to the Cold Storage Company

to ship the barrels the following day. I left for Ottawa that evening; but what was my amazement to find when I returned, a couple of days after, that the apples had not been shipped in cold storage. I fully expected at that season, during very hot days in August, the apples to arrive in a mush and made up my mind to suffer considerable loss. The returns were, for the fifteen barrels, £4 11s 10d, or \$1.50 per barrel. My profits after deducting freight and charges were small, but on the other hand I was pleased not to make a big loss in the transaction. I attribute it altogether to the fact that the fruit had been thoroughly well cooled in cold storage before being shipped.

But there are times, even in the month of October, when cold storage chambers on board ship are badly needed for our apples. I have noticed the Fameuse shipped during the first few days of October—that is to say immediately after being picked; or rather the first of the Fameuse picked—and when the fruit is in a hard and crisp condition, carry to England remarkably well. But in a large orchard it is not possible to pick all the apples during the first weeks of October; in fact it generally takes the whole of that month to harvest the fruit. I have also observed that almost without exception, during the picking season, we have a week or more of really hot weather in October; the thermometer frequently touching 65 to 75

degrees of temperature. It is not advisable to ship our apples to England in October in the ordinary freight compartments, if the temperature at the time of shipment is 50 degrees or over that mark. A reference to the maximum temperatures of the month of October, at Montreal, will be interesting. In 1899, the average maximum temperatures for the four weeks of October were as follows:—First week, 47 degrees; second week, 58; third week, 65; fourth week, 45.

In 1900 it was much warmer, viz.:—First week, 70 degrees; second week, 55; third week, 62; fourth week, 63.

It is strange that the third week of this month, in each year, the temperatures averaged over 60 degrees maximum—much too hot weather to pick, pack and ship Fameuse, at a time when the fruit is pretty well matured, and expect it to arrive on the other

side in a satisfactory condition. My advice is not to ship at all, except in cold storage, during the hot term. The holds of the ships are much too hot to carry the fruit over in good condition, and hence it is that we frequently hear of fruit arriving slack, and in bad order. The plan I have adopted, the last couple of seasons, is to send the cases of apples to the cold storage warehouses during the hot term, immediately after being picked, and to keep them there a month or so in cold storage, and they reach their destination in splendid order.

Last season in the month of November, I successfully exported Wealthy, in cases, which had been put in cold storage six to seven weeks before being shipped, but I could not have expected to ship the same cases in the months of September or October, and meet with the same success, unless transported in cold storage.

THE BALDWIN CHERRY.

IN a publication, issued by the State of Kansas, entitled the *Cherry in Kansas*, (for which the writer is indebted to Mr. Wm. H. Barnes, Secretary Kansas State Horticultural Society), is an account of a cherry originating in Kansas which seems to give promise of being a desirable variety for fruit growers in Ontario.

It is stated that the origin of the tree was on this wise: In the spring of 1888 S. J. Baldwin, of Seneca, Kansas, planted an orchard of eight hundred cherry trees, that the bud part of this tree got broken out, that a vigorous sprout shot up from the stock, which was suffered to become a tree, and in 1892 began to bear fruit. After having borne fruit for four consecutive years, Mr. Baldwin was so well pleased with the quality and early ripening of the fruit, and the vigorous habit and productiveness of the tree that he decided to propagate from it.

In the spring of 1898 he set out two hundred trees grown from this new variety.

The following winter, 1898-99, was unparalleled in severity, causing the death of a great number of trees of English Morello, Early Richmond, Montmorency and others of that class, and so badly injuring those that survived that there was scarcely half a crop in the season of 1899. Notwithstanding the extreme cold the original tree bore a full crop in 1899, and of the 200 young trees set out in 1898 only four died.

The fruit is thus described by Mr. Baldwin: "Large, almost round, very dark transparent wine color, flavor slightly acid, yet the sweetest and richest of the Morello type." With commendable naivete he says that at first he named the new cherry "Kansas Queen," but learning that the rules of the American Pomological Society forbade giving compound names, at the suggestion of Mr. W. F. Heikes, Huntsville, Alabama, it is named "Baldwin."

D. W. BEADLE.

Toronto.



GREENHOUSE, WINDOW AND GARDEN—VII.

THE GREENHOUSE. There will be little doing in the greenhouse during the hot weather, as the garden and lawn will now be the chief attraction, until the chilly autumn weather arrives. The greenhouse must not, however, be entirely neglected, especially if chrysanthemums are being grown in it, as recommended in the May issue of the Journal.

Chrysanthemums require a liberal supply of water, and must never be allowed to become quite dry at the roots. This liberal supply of water mentioned does not mean that the roots of the plants must be saturated all the time, as an excess of moisture is almost as hurtful to them as an extreme of drought would be. Keep the roots of these plants moist but not soddened. Syringe the plants once or twice daily during the hot weather. Throw plenty of tobacco stems under the benches. Start early in the season with the tobacco stems, so as not to allow the green and black fly to get a strong hold on the plants. Very little, if any, shading is necessary for chrysanthemums grown under glass.

Plants of primulas, ferns, begonias, seedling gloxinias, cyclamen and odd plants that are kept in the greenhouse all the summer,

must be given shade, and the watering must not be neglected. If the greenhouse is wanted to grow chrysanthemums in, all of these and similar plants will do very well until late in September placed in frames, with a sash over them. The sash should be shaded and ventilation given the plants the same as if they were in the greenhouse.

Gloxinia bulbs, when out of flower, should be gradually dried off, and the pots, bulb and all, placed on a shelf in a cool dry shed or out-building until fall. No water should be given them until toward spring, when they are again started into growth. The pots must be removed early in the autumn to a position where they are secure from frost.

Plants of Azalea should be stood outside in partial shade, and not be allowed to dry out at the roots. Sprinkle tobacco stems about around the pots, and syringe the plants daily.

All plants not required in the greenhouse should be stood or plunged outside, in ashes if possible, and in a partially shaded position, so as to save unnecessary labor in watering them.

WINDOW PLANTS.—Windows facing the east or north furnish good positions for al-

most all kinds of plants during summer, whether in window-boxes or otherwise. Windows facing the south are not so desirable, as the shutters or blinds are of necessity kept too closely drawn in summer for the plants to succeed well on the inside, and if the plants are placed outside even in window-boxes, they usually present a shabby burnt up looking appearance in a very short time, unless some means can be found for shading them during the extreme heat of the day.

Many of the choicer kinds of what are often termed house plants, viz., plants that have occupied vases and jardinieres during winter and spring, or that have perhaps been kept in a south window during that time, will succeed much better if removed to windows facing the north or east during the summer months. This is often even better for the plants than standing them out in shaded positions on the lawn or in the garden, as plants that are stood out in this way are often neglected, and allowed to become too dry at the roots for the well-being of the plants.

Plants such as dracenas (cordylines) aspidistras, cyperus (umbrella plant), farfugiums (leopard plant), ficus elastica (India rubber plant), ferns, begonias, abutilons, fuchsias, and other tender plants taken from the house or window, will however find an ideal position for the summer in window-boxes on the north side of the house. Boxes placed on the rails, or on the steps of a verandah facing the north, also provide a good position for these plants in summer, the plants often helping materially to brighten up a part of the house that might otherwise look dull and uninteresting.

Avoid giving the plants too much water when placed in positions where the sun scarcely ever reaches them, as the evaporation and exhaustion of moisture is very slow, the plants requiring much less frequent watering than in more exposed situa-

tion. Water should be given plants when they require it, and not on stated fixed days, when oftentimes water would be better withheld from them. Plants are not like clocks and watches, to be regulated and run with mathematical precision, according to dates and figures, but are more like children who thrive best when given their bite and sup when they are hungry and thirsty. The prompt and practical application of experience, gained by close observation of the needs and requirements of different plants, under perhaps widely varying conditions, is really the best guide for their successful culture and care. Nature, in plant-life especially, is constantly presenting itself to our notice in ever-varying, ever-changing conditions. Intelligence and diligence are essential features necessary to be brought into active use to be successful in plant culture.

But these remarks are perhaps out of place in what should be a really practical article, so I must not diverge from the line of practicality again.

It may perhaps be thought undesirable to have boxes of plants either in windows or on the verandah, on the score of cleanliness, as it is impossible to have these without a little dirt and disorder under almost any circumstances. This objectionable feature may in a great measure be done away with if pot plants only are used in the boxes. By packing the pots in the boxes firmly around with fresh green moss, the plants will not dry out so rapidly, and will grow and succeed almost as well as if planted in soil, especially if a little liquid manure, or a mild fertilizer of some kind be given them about once a week. Many of the commercial fertilizers can be successfully used for plants in positions of this kind, with no objectionable feature to prevent them being used.

I have used moss on the outside of boxes and tubs of plants with great success, sticking the clumps of moss on the boxes with



FIG. 2081. CYCLAMEN (3 years, from seed).

hot melted pitch. This latter material, however, is not pleasant to use. Large clumps of moss can, however, be successfully tacked on the boxes; this can be brightened up and made to look very rustic and natural looking by dotting here and there a few pieces of lichen or fungus taken from old decayed trees or stumps. Large strips of coarse bark, taken from old basswood or similar trees, makes a good outer covering for plant boxes, not only giving them a natural, pleasing appearance, but these coverings are very beneficial to the plants, preventing the soil from drying out as rapidly as it otherwise would do.

Cactus, amaryllis, clivias, pelargoniums, calla lilies, and a few other plants that it is necessary to remove from the window to undergo their customary period of partial rest during summer will require only very moderate waterings.

This is the only practicable method of giving these plants the rest that they get naturally during the dry seasons that usually prevail where they are natives, and that is so essential to most of them to produce good flowering results during the winter months.

If you have a pot of freesia bulbs, the growth of which is beginning to look shabby and yellow, stand them just as they are in

the pot on a shelf in a dry shed or out-building. No more water should be given them during the summer. In August the bulbs can be shaken out and re-potted, and grown on for next season's flowering.

Old plants or corms of cyclamen should be given very little water during the summer, only just sufficient to barely keep the soil moist. A cool position under a small sash, so as to prevent them from getting too much water, is a good position for cyclamen bulbs until about September, when they can be watered, re-potted, and placed in the window, so as to grow on for next season's flowering. If the convenience of a sash is not available during the summer, stand the plant in the shade out of doors, and place a piece of board above it to prevent it getting too much water. Extremes of either drought or moisture in summer when the bulb should be resting is almost certain to rot and destroy them.

THE GARDEN.—Many of the perennials will now be at their best in the flower garden. Some of the early sown annuals will also be producing their welcome blossoms.

If you notice the sweet pea vines looking unhealthy, and perhaps a vine or two here and there withering and dying without any apparent cause, make an examination around near the bottom of the vine; you will very likely discover that the trouble is cut-worms. These destructive grubs are quite partial to either the sweet-pea vines or those of the garden pea. By searching underneath the surface of the soil around the roots of the plants these voracious grubs can generally be unearthed. The cut-worm feeds at night, and can be often caught at its destructive work if searched for by the aid of a lantern after dark.

Most of the transient or summer occupants of the flower beds or borders, will be established for the summer by this time. It is best to water these early in the morning during June, as oftentimes the nights are



FIG 2082. CABBAGE ROSE.

chilly, and watering them at night increases the danger of chilling the plants.

If you have any plants of the pretty summer and autumn flowering *salpiglossis*, keep a close look out for attacks of the potato bug. The Colorado beetle is just as partial to these as it is to any of the numerous varieties of *solanum*, to which order or class of plants the *salpiglossis* as well as the potato (*Solanum tuberosum*) belongs. It takes but a few hours for these voracious Colorado bugs to destroy a good sized clump of *salpiglossis* plants. Some of the new varieties of this pretty annual have very beautifully marked flowers, and in shades of color so seldom seen in annuals that make them doubly attractive to flower-lovers, in spite of their being such a favorite mark for the potato bug to attack.

Syringing the rose bushes with tobacco water must be kept up if the rose-thrip is very bad, or ample supplies of stems or to-

bacco dust sprinkled about and around the bushes. This pest has of recent years attacked all varieties of the *ampelopsis* very badly, as well as out-door grape vines. Strong tobacco water, or a very weak solution of Paris green water, as recommended in last month's journal, applied early in the season and often, is the best remedy for these white, lively pests.

VEGETABLE AND FRUIT GARDEN.—There will be little to do in the way of planting and sowing, except perhaps to plant out late cabbage and cauliflower toward the end of June or early in July. Sweet corn and the late varieties of beans can be planted for use after the earlier sown crops are done. One of the best beans for planting for a late crop is the I.X.L. bean, it is the best variety of the dwarf bean that I have found to produce a crop in hot weather. If you have a rich piece of soil under the partial shade of a fence or a low building, plant a row of the asparagus pole bean early in June. This is a delicious bean, and crops right along until frost sets in. They will succeed in an open rich piece of ground, if well watered and the season is suitable for them.

Weeding and hoeing must be attended to; stirring the soil often, increases the growth of plants and helps to give good crop results.

Currant and gooseberry bushes must still be watched for caterpillars. Hellebore is the only really safe remedy to use for them now at this advanced stage of the fruit. Spraying the plum and other fruit trees with Bordeaux mixture must be attended to as soon as the blossoms have dropped. The crop of all small fruits in this section promises at this date (early May) to be very good if the amount of blossom on the trees is any criterion to go by. Apples do not promise such a heavy show of blossoms as last season. The steady and continuous cool weather experienced during the end of April, with north east winds, has helped to keep back and harden fruit buds and early growth

considerably, so that late frosts should not, if they come, do very much damage. Complaint is made in a few localities of a sparsity of peach-blossom. This only seems to occur in spots where heavy crops were taken from the trees last season. Over-cropping the young trees is probably the cause. There is no excuse for this injurious and unremunerative practice of allowing trees to over-crop themselves, when only one or

two trees of each kind is grown. Thinning the fruit brings better fruit, increases the weight of the crop if properly done, and lessens the liability of damage, as well as of too great a strain on the vitality of the tree, both of which evils are almost certain to occur if the trees are allowed to bear too heavy a crop.

W. HUNT.

Hamilton.

ALDERMAN BLACK AND HIS GARDEN.

Among the horticulturists of Ottawa there is none more enthusiastic than Alderman Black, who is shown in the engraving, framed in a background of the lovely roses he grows so successfully. Good as is the half-tone plate, it but very imperfectly represents one of the most beautiful June sights of the many to be met with in the gardens of Ottawa. The splendid display of color, the exquisite shading, the grace and variety of form, are almost lost in the engraving. All the roses are from the nurseries of Hugh Dickson, Belfast, Ireland. The white rose in the foreground is one of the latest and best of Dickson's productions—Mrs. R. J. Sharman-Crawford. Next in order among the taller roses come Magna Charta, Ulric Brunner, Mrs. John Laing, Gloire de Margottin and Mad. Gabriel Luizet, while in the corner, on Mr. Black's right, is shown a fine Crimson Rambler. The Margottin had at the time the photograph was taken 214 fully expanded blooms. Among the dwarf roses is a very beautiful La France, which Mr. Black has had no difficulty in bringing through the severe winters which prevail at Ottawa. His method of protecting roses is worthy of especial notice, and has, it is said,



FIG. 2083. ROSES GROWN BY ALDERMAN BLACK, OTTAWA.

been adopted at the Central Experimental Farm, where H. P. roses have in the past suffered greatly in winter. After the surface soil freezes, the canes are bent down to the ground and securely boxed in between 16-inch boards. Dry leaves are then packed loosely among and over the canes, and a cover nailed closely to the sides. The canes are thus completely encased, and snow and rain, which cause more damage than frost, are excluded. The leaves and casings are removed on the first warm day of early spring, and the canes come out perfect to their very latest growth, and quite uninjured by the mold which has wrecked the hopes of so many rose growers.

Ottawa, April 12th, 1901.

L.

TIMELY TOPICS FOR THE AMATEUR—XVI.

USE AND ABUSE OF FLOWERING SHRUBS.

THERE is no class of plants that adds more to the beauty of the lawn and its surroundings at this season of the year than flowering shrubs, especially if the little care and attention which they require, compared with other plants, is taken into consideration. But how seldom do we see anything like a really natural looking, nicely shaped specimen of these shrubs, with their long, graceful, drooping racemes, or perhaps their bold upright spikes of growth, laden down or almost completely covered with their beautiful buds and blossoms, as most of them should be in their flowering season if the plants have been properly cared for.

Too often, however, instead of the wealth of bud and blossom that these plants produce in such profusion, if only fairly well treated, we see stubby, miserable shorn-and-shaven looking specimens, clipped—not pruned—into all sorts of ugly indescribable shapes and forms, with perhaps a few of their bright blossoms sprinkled here and there on the stubs of young growth of the preceding year, that the destructive clipping shears had not been so severely used upon; or perhaps, in some cases, a few blossoms may be seen scattered through the centre of the shrub where the clipping shears did not reach the young flower-producing growth.

This annual clipping process, which usually takes place in July or August, when most of the flowering shrubs have about completed the season's growth, is, in the majority of cases, responsible for the miserable looking apologies for these plants so often seen on lawns, and in small plots of flower-gardens, at this season of the year.

There are few flowering shrubs, excepting perhaps tall or strong growing kinds, such

as syringa (lilac), *Cydonia japonica*, *Philadelphus* (mock orange), and the tartarian honeysuckle, etc., that cannot be effectively pruned and thinned out when in flower, so that the plants can be kept in sufficiently good shape and condition, without having recourse to the destructive system of clipping so often resorted to. Even these strong growing varieties cannot endure the clipping shears and give satisfactory flowering results as well.

Weigelas, spireas, tamarisks, most varieties of the deutzias, and even the more straggling growing forsythias and other dwarfer growing shrubs, should never have the clipping shears applied to them at any season of the year.

Almost all flowering shrubs, with a few exceptions, produce their wealth of blossom on the growth made during the preceding summer. If this is clipped off as soon as growth is completed, the result is disastrous to the next season's crop of flowers. If those, who have a plant or two on their lawns of the shrubs mentioned, will only take notice during the flowering season on what part of the growth the flowers are produced, the evil effects of this clipping process can easily be understood.

Varieties of the hydrangea such as *H. paniculata*, *H. japonica* and the different varieties of the shrubby hibiscus (*althea*) produce their flowers on wood of the same season's growth. These shrubs should be pruned back to within three or four buds of the preceding year's growth, either late in the fall or early in the spring.

But with most of the other species and varieties of shrubs before mentioned, almost all the pruning they require can be done whilst they are in flower. By cutting out



FIG. 2084. A GLIMPSE OF NINETEENTH CENTURY FLOWERS AND FOLIAGE—PHOTO OF FLOWER BEDS AT INGLEWOOD, HAMILTON, SEPT. 12, 1900.



FIG. 2085. WEIGELIA ROSEA.

with a sharp knife here and there at different parts of the plant, the most prominent and straggling sprays or branches, the plant can be made to assume a shapely and natural appearance. The sprays or branches thus removed, will not only leave the plant in a more symmetrical condition than before, but the sprays will be found very useful and pretty for indoor decorative purposes. Care must be taken, however, in thinning out the sprays or branches, not to cut out too much of the growth of any one part of the plant, so that the beauty or shape of the plant will be marred or disfigured by the operation. By observing closely when and where the flower producing growth of the plant springs from, even the most inexperienced amateur can thin out almost any of the flowering shrubs mentioned when they are in flower, without spoiling the appearance of the plant. So little attention, however, do most of the

dwarfer growing flowering shrubs require, that it is better not to attempt to prune them at all, than to disfigure and render them useless as decorative plants, by the use of the clipping shears, as is so often the case.

The little pruning and care that flowering shrubs require is generally recommended to be done during late autumn or early spring. The summer pruning process, however, that I have attempted to describe, unless carelessly and ruthlessly carried out, does the plants no harm, and in many cases does away with the necessity of any further pruning, as well as giving a supply of their beautiful sprays of blossom so useful for indoor decorative purposes. The sprays should be placed in water at once as soon as cut, as when once wilted they seldom recover their freshness again, as most flowers do that are cut from softer wooded plants than shrubs.



FIG. 2086. WEIGELIA VARIEGATA.

I have summer pruned a shrub of forsythia annually for the past fifteen years. Only once or twice during that period have the plants had but little fall or spring pruning. The plant is now (May 6th) a pretty and conspicuous feature on the lawn, laden as it is with its wealth of golden-bell flowers from the ground to the tips of its longest branches, before but few flowering trees or shrubs are showing any signs of their coming summer beauty. It is also a matter of regret that the forsythias are not quite hardy in the more northern parts of Ontario. Even in this section during very severe winters the tips of the growth are sometimes partially killed out. The past winter seems to have been favorable not only to this variety but also to the varieties *F. suspensa* and *F. viridissima*, as plants of the three varieties are giving splendid flowering results this spring on the lawns here at "Inglewood."

The *Weigelia rosea* as shown in the centre of Fig. 2085, is another shrub that has had no pruning for the past twenty years, excepting the summer thinning before described, when both this and other similar plants

have furnished quantities of their beautiful sprays of rosy-pink blossoms, to supply large vases and jardinières for house-decorative purposes.

Many of the spireas and deutzias and other shrubs are also useful to furnish a supply of cut-flowers in summer, but the blossoms of many of them do not retain their freshness for as long a period as do those of the forsythias and weigeliæ, after being cut.

Flowering shrubs are one of the most suitable classes of plants for decorating the surroundings of our homes, if judiciously planted and a little care bestowed on them afterwards. But the growth of the plants must not be ruthlessly slaughtered by unnecessary and unnatural clipping or pruning, if the best results possible of their free-flowing habit is to be attained.

Old plants that have endured the clipping process for years will be hard to redeem, so as to induce them to give good flowering re-



FIG. 2087. SPIREA DOUGLASHII AND BUMALDA.

sults. Young plants, however, if commenced on early enough, and attended to annually, will be found quite amenable to this system of summer pruning, when they are in flower, and will not, unless the growth is very vigorous, require any further attention so far as pruning is concerned.

Hamilton.

W. HUNT.

THE NEW HOLLYHOCKS.

THE hollyhock is being greatly improved and is becoming one of the first lawn flowers of the day. The improved sorts seems to be more of a biennial order than perennial. It is one of my special favorites, and why should it not be? Here is a stately stock six feet high, full of flowers, pure crimson scarlet, without the usual rough brownish lines; very large, five inches in diameter this dry season, perfect in shape and full double. It has been named "Crimson Jackmanii." I gave it a good strong soil and good cultivation, and get lots of flowers.

Seed may be planted any time. I prefer to plant the new seed as soon as ripe where intended to flower, under a covering of brush and hay, and I also protect during winter with same. I now have plants in full bloom (July 15) from seed so planted last August. They generally come true from seed, but not always; one in ten may be inferior, which should be pulled at once, and one in fifty be an improvement, from which the seed should be saved from a few of the first flowers and planted at once; also cut down the stalk as soon as ripe, and at same time take up and divide the root into as many parts as eyes are showing growth, and plant each part separately, shading them until established. Such divided plants will give superior flowers next year. To leave the plant undivided over winter, the chances are it would be dead in the spring.—

American Florist.



FIG. 2088. HOLLYHOCKS.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

GRAPES FOR EXPORT.—The Department of Agriculture at Ottawa is making arrangements to push forward the experimental export of grapes from the Niagara district this autumn. About 100,000 lbs. of Rogers black and red varieties will be forwarded.

A BASKET PICNIC of the Halton Farmers' Institute and Women's Institute, was to be held on the farm of A. W. Peart, our experimenter, on Victoria Day. Lunch was to be served at noon and a stroll through the orchard was to occupy part of the afternoon. We fear the storm has postponed this outing, which is but the beginning of a series which will follow.

GILLETT'S LYE.—Mr. E. W. Gillett writes: "We are getting good reports from all sections and are confident our goods are first-class for the purpose of spraying, when

used properly. While it may be true that the majority of brands of concentrated lye is nothing but caustic soda, it does not follow that that is true of Gillett's goods."

ABOUT fifty varieties of the finest French cherries have been imported for trial at Maplehurst. They came from the famous nurseries of Chas. Baltet, Troyes, France.

O. M. A.—Mr. G. B. Bracket, U.S. Pomologist, has just been decorated for conspicuous services at the Paris Exposition, with the ribbon of the Order of Merite Agricole.

THE FIFTH ANNUAL MEETING of the American Park and Out-door Association will be held Wednesday, Thursday and Friday, June 26, 27 and 28, 1901, in Milwaukee, Wis. The secretary is Mr. W. H. Manning, 1146 Tremont building, Boston, Mass.

THE GEORGIAN BAY FRUIT GROWERS' ASSOCIATION held meetings last month at Creemore, Stayner, Collingwood, Thornbury and Meaford, addressed by Mr. Alex. McNeill. The object is to organize branch associations at these places. The secretary is Mr. Chas Lawrence, of Collingwood.

THE VICTORIA MEDAL OF HONOR in horticulture was established in 1897 with the assent of Her Most Gracious Majesty, in commemoration of the Golden Jubilee of her reign. The limit in number of persons upon whom this honor may be conferred is sixty-three, a record of the number of years of her late majesty's glorious reign. Among these we notice the name of Miss E. A. Ormerod, L.L.D.

FRUIT GROWERS' INSTITUTE MEETING.—Supt. Creelman is planning a series of June meetings of Farmers' Institutes, several of them to be Field days at our fruit experiment stations. The South Wentworth Institute, for example, will make an excursion by special cars, along the line of electric railway from Hamilton to Grimsby, visiting the more important fruit farms on the way. Some of the Cabinet ministers will also be invited to attend. This will be a departure in the right direction.

TRAP LANTERNS FOR INSECTS. — This scheme for destroying insects is very plausible as a substitute for spraying, but the difficulty with it is that nearly all kinds of insects and moths are attracted by the light and caught in the trap, some of them friends of the fruit grower, while the codling moth, the one most injurious, is the one least liable to be caught.

Prof. Stedman, of Missouri Experimental station, says :—

I find that the following injurious insects, that are claimed to be caught by certain trap lantern agitators, are either not caught at all or are caught in such rare cases as to be only accidents: Codling

moth, potato beetles, plum curculio, gouger, flat and round-headed apple-tree borers, peach-tree borers, tobacco worm moths, tomato worm moths, squash bug.

The following injurious insects are caught by trap lanterns: Corn worm moth or boll worm moth, cut worm moths, June or May bugs (beetles), tent caterpillar moth, pickle worm moth, army worm moth.

On the other hand, a great many species of Ichneumon flies, which are our most beneficial insects, were caught in immense numbers, and outnumbered all other species in my traps. These insects sting and lay eggs in or upon the bodies of injurious and other insects, and their larvae prey upon their tissues and destroy them. It is in this way that many injurious insects are kept within bounds; and these Ichneumon and other parasitic insects do vastly more good than all trap lanterns and sprays combined. These Ichneumon fly parasites are what a certain trap lantern agitator calls in his circulars "Stinging fly or wasp-like insect that stings the fruit." (This is as perfect a short description as could be given). Now these parasitic creatures never sting fruit or plant at all.

Any person can see from the above facts that a trap lantern is of no value in an orchard, but on the other hand is a great injury, because of the immense number of parasites it kills.

A trap lantern is of great value in its place, and one of these places in Missouri is in the corn field at the time the corn tassels out.

IMPROVEMENT ASSOCIATIONS is a department in the journal "Park and Cemetery," conducted by Frances Copley Seavy, giving suggestions for the improvement of village and home grounds. Of late many local associations of this sort have been formed and much work done through the schools and otherwise, by arousing public interest. Wherever one of our affiliated horticultural societies exist there should be no room for any such society, for it is for just such work that these societies have been fostered.

Some useful suggestions are given in the following reports:

The City Improvement Society of Lincoln, Neb., was organized for the improvement of civic conditions. Its specific work has so far resulted in cleaner streets, better sidewalks, the cutting of weeds, placing boxes at street corners for rubbish, bettered sanitary conditions generally, the decoration and improvement of school grounds, the opening of a city park and park concerts. A comprehensive and satisfactory showing and one that should make for increased membership and influence. But, in addition, it has graded, established lawns, set trees, planted flowers, made window boxes and built protecting fences for its factory grounds, and is planning to offer prizes for well-kept lawns, flowers,

etc., and furnishes an arbor day program for use in the public schools.

The Riverside Press, Riverside, Cal., gives an account of a lecture delivered by Mr. C. M. Loring to the citizens of that town on beautifying the streets, in which he gave some practical hints that other cities would do well to observe. After telling how many European cities made even their business streets attractive by trees and grassy spots, Mr. Loring emphasized the natural beauties of Riverside, and gave some specific directions for improving their streets and home grounds as follows: Authorize trustees to plant, remove and care for street trees, and assess property owners for cost of the work; create the office of city forester; reduce width of driveway on residence streets, and keep planting spaces clean; induce property owners to adopt a regular alignment of buildings, and to maintain neat lawns; prohibit advertisements from trees, other natural objects, telegraph and electric-light poles; enforce the ordinance against hitching horses to trees; keep drives and streets well sprinkled; plant trees where needed, and remove them where too thickly planted; plant more deciduous trees. "The whole city," said Mr. Loring, "should be a work of art. Even packing houses and manufacturing institutions can be made more attractive with vines."

FRUIT REPORT.—Barns, Secretary Kansas State Horticultural Society, under date of May 8th, sends us the following early report of fruit prospects, which, from present appearance of our blossoming season, will be duplicated in Ontario, except perhaps in apples:

Promise of fruit of all kinds was never better at this time or the year in this state.

Apricots and raspberries do not promise over one-fourth of a crop, and in some low spots peaches will fail; otherwise, all kinds of fruit promise a full crop.

We have 120 reports, from seventy-five counties, fully distributed over the state, as follows: *Apples*—77 report full crops; 13, seven-eighths; 12 three-fourths; 8, one-half; 2, one-fourth. *Pears*—68 report full crop; 4, seven-eighths; 13, three-fourths; 11, one-half; 2, one-fourth; 1, one-tenth. *Peaches*—78 report full crop; 8, seven-eighths; 12 three-fourths; 6, one-half; 6, one-fourth. *Plums*—83 report full crop; 8, seven-eighths; 12, three-fourths; 5, one-half; 2, one-fourth. *Cherries*—99 report full crop; 9, seven-eighths; 10, three-fourths; 11, one-half; 1, one-fourth; 4, one-tenth. *Apricots*—31 report full crop; 9, seven-eighths; 10, three-fourths; 1, one-fourth; 1, one-fifth; 4, one-tenth. *Mulberries*—83 report full crop; 4, seven-eighths; 1, three-fourths; 3, one-half; 1, one-fourth. *Grapes*—75 report full crop; 8, seven-eighths; 9, three-fourths; 1, one-half; 1, one-fourth. *Berries*, excepting raspberries—74 report full crop; 10, seven-eighths; 13, three-fourths; 4 one-half.

The central and western counties are especially

elated over the peach and cherry prospects; it was a little early for full reports on grapes.

Very few insects are noticed. More new planting than usual.

SWEET PEA WINDOW SCREEN.—A writer in the *Ladies' Home Journal* suggests a sweet pea window screen as a good screen against the ugliness of the sun at the back window. The following is the paragraph:

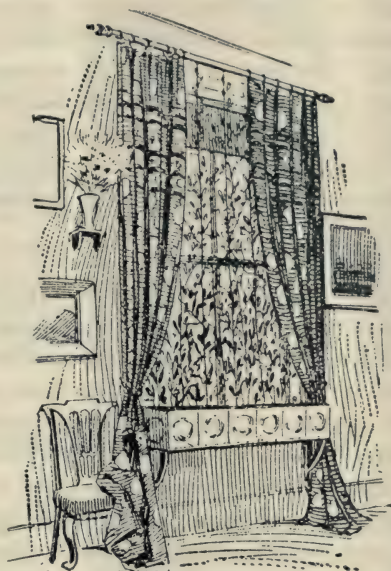


FIG. 2089.

Given a long, narrow box for this purpose with a simple trellis work of ordinary wire or twine, well pulverized and enriched earth, with a small addition of sand and a moderate amount of sunshine (sweet pea vines being easily scorched) and a pretty window, a fragrant room, and plenty of blossoms for cutting may be confidently counted on, says the authority quoted, and an accompanying illustration verifies the statement.

A peculiarity of sweet peas is that the higher they are trained the more profusely they will bloom, and if all fading blossoms are removed before they can go to seed, a constant succession of bloom is secured.

QUESTION DRAWER.

Spraying.

1219. STR.—Please give me some information about spraying. When is the best time? In what proportions would you mix the ingredients for the different times? How many times should apples and plums be sprayed?

I have set out a plum orchard of five hundred trees, which are now in their second year, and they are growing finely. Would you advise spraying them before they begin bearing? Could you give me the name of a good fruit journal?

Senda, Ont.

W. T. NUTT.

The questions of our correspondent, who evidently does not receive this journal, reveal a common lack of information throughout Ontario, with regard to the purpose and manner of spraying. Much has been done by the Ontario government to make known the benefits, and yet much remains to be done. Indeed it has become a large subject, and to write a detailed reply would take much space.

Before one thinks of spraying, he should have a definite purpose. To spray those young plum trees, growing vigorously, would probably be a waste of time and money. When they begin bearing, should they be subject to rot, spraying with Bordeaux mixture as soon as blossoms fall, and every two weeks thereafter according to judgment, might prevent.

If curculio is making havoc in the plum orchard, a spraying with Paris green, three ounces to forty gallons of water, immediately after blossoms fall, is sometimes very helpful.

If the tent caterpillar or canker worm is eating the leaves of any of your trees, poison them by spraying with Paris green.

If apple scab affects your apples badly, year after year, better spray faithfully with Bordeaux every two weeks, from before bloom until the dry weather becomes constant.

If your cherries rot badly, keep them covered with Bordeaux, and the spores

that light upon the fruit cannot find a place to enter the skin.

If your grapes are inclined to mildew, begin spraying before the leaves come out with Bordeaux, and keep the vines and the fruit green with it until settled dry weather, in July or August.

Bordeaux mixture is made by dissolving four pounds of lime in one barrel of water, and four pounds of sulphate of copper in another, and then pouring the latter with the former, stirring vigorously. When mixed together the whole should make about forty gallons of Bordeaux mixture.

Spraying is a wide word, so many mixtures are used. For aphids we spray with kerosene emulsion; for San Jose scale with crude petroleum or whale oil soap, and so on. Soon a tree doctor will be needed to diagnose the disease and tell us what remedy to apply.

Apples Compared.

1220. STR.—I would like you to tell me in your open letter columns what is your opinion as to the relative merits of the Northern Spy, Cranberry Pippin and Blenheim Orange. Are the two last named superior to the Spy in quality and bearing. The Spy is an apple that is being extensively planted in this vicinity. It bears early and is very productive—that so far has been the experience of those who have tried it. Is there any raspberry now grown in the east that can compare favorably with the Cuthbert as to productiveness and shipping qualities. By answering the above questions you will greatly oblige me.

Salmon Arm, B. C.

J. D. MCGUIRE.

There is no apple of its season, grown in Ontario, that excels the Northern Spy. In size, beauty and quality it is the best apple we grow. With us, however, it is a long time in coming into bearing, which is its chief fault. It needs high cultivation, close pruning and plenty of fertilizer.

The Cranberry Pippin is a very showy apple and first-class for export, but somewhat uncertain in bearing, and of poor

quality compared with Spy. It is also a winter apple. With us at Maplehurst it has borne remarkably well some seasons, giving a crop of magnificent apples, and then again the fruit has been irregular in size and scant in quality. We have planted it next in quantity to Spy for export purposes.

Blenheim Orange is an early winter apple, indeed some call it a fall variety, though in northern sections it keeps fairly well. It is a magnificent apple and no one can go astray in planting it. It succeeds in places where the Spy is too tender, and is a great favorite as a market apple with some growers.

These three are all first-class commercial apples, and deserve almost equal places as money makers.

Double Pear Bloom.

1221. SIR,—I have mailed you to-day one cluster of bloom taken from a young pear tree, three years planted. I noticed last year that the bloom on this tree was double, in comparison like a single and a double flower.

About two-thirds of the blooms on the tree were double. The tree is in bloom just now. In looking over my other pear trees comprising about twenty varieties all in bloom, I could not find one double bloom on any of them. As I have not noticed double bloom on any fruit trees before, I thought I would call your attention to it. I have been wondering if a double bloom would develop finer fruit than a single.

Galt, Ont.

WALTER M. TURNBULL.

Double flowers are ornamental only, for the more double they are, the less likely are they to fruit. This is because the stamens which bear the pollen are transformed into petals. No doubt the peculiarity could be propagated by grafting.

Border Plants.

1222. SIR,—Could you give us a list of plants that once planted would come up every year. I want to plant a border and some beds. Also could you name some shrubs that would go with them.

Toronto.

H. G.

Our correspondent will find, on page sixty-two, a good list of border plants given by a professional gardener, Mr. Wm. Hunt, of Hamilton. The herbaceous perennials

there described, such as arabis, dielytra, iris, perennial phlox, pæonies, columbine, coreopsis, rudbeckia and delphinium would give great satisfaction, and make a beautiful display, year after year. They are much better than annuals for a border, because once planted they will come up year after year and give a certain permanent character to the beds.

As for a list of shrubs, our correspondent can do no better than to read over the article on deciduous shrubs, on page 197, written by Mr. R. Cameron, chief gardener Victoria Park, Niagara Falls, and select his list accordingly.

Destroying Ants.

1223. SIR,—Can you give me an effectual remedy for ants in lawn without injury to the grass. Am much bothered with their nests, which are not only unsightly, but interfere with the work of the lawn mower. Kindly answer in Horticulturist and oblige, yours, truly,

Erasmus.

GGO. WOOD.

The following method of destroying ants is quoted from a bulletin of the Mass. Exper. Station: "Make holes with a crowbar or convenient stick from six inches to a foot deep, and about fifteen inches apart, over the hill or portion of the lawn infested by the ants, and into each hole pour two or three teaspoonfuls of bisulphide of carbon, stamping the dirt into the hole as soon as the liquid is poured into it. The bisulphide of carbon at once vaporises and, permeating the ground, destroys the ants but does not injure the grass. One should remember while using this substance that it is highly inflammable, and not bring near it a flame or even a lighted cigar.

Oyster Shell Bark Louse.

1224. SIR,—Enclosed is a cutting from an apple tree which appears to have some bark disease. Will you kindly inform me if it is anything requiring attention, and if so, kindly advise a remedy and greatly oblige.

Limehouse, Ont.

SUBSCRIBER.

These twigs are covered with Oyster Shell Bark Lice. No samples are more fre-

quently sent in for identification, which proves how wide spread this insect now is in Ontario. It increases very slowly, but if neglected for years, the trees become so incrustated with them as to become unfruitful. To destroy them the bark should be scraped in early spring and washed with whale oil soap, two pounds to five gallons of water, or with Gillett's Lye, one ten cent package to five gallons of water; and then about the first week in June, when the young lice are moving, the trees should be sprayed with kerosene emulsion.

Value of Fruit Land.

1225. SIR,—In your March issue you question the correctness of Prof. Macoun's valuation of bearing orchards at \$1,000 per acre. It would be interesting to see published what you consider a conservative estimate of the value of (1) small fruits, and (2) bearing plum, peach, pear and cherry orchards per acre, in say the Niagara fruit district, convenient to shipping points.

Vancouver. A. W. F.

A small fruit plantation does not so much increase the value of the land because it is so easily placed or removed. An acre of land to currants would be worth little more than land without these plants, the value of the crop is so little. Planted to strawberries it would be worth about the net value of one years' crop more than without, say \$100 more than the land without, and we would estimate raspberries about the same, so that if the land is worth \$100, the crop value would add as much more, making it \$200.

A peach or cherry orchard, and of the best varieties, would mean a much larger productive investment, and much higher value. Two acres of garden land near Grimsby, with peach and plum trees in bearing, and raspberry bushes between, have just been sold at \$600 per acre, but then the land was counted worth \$400 before the trees were planted.

We think that as an investment, any man who pays more than \$500 per acre for the finest orchard of any kind of fruit trees, is paying an outside figure, and, as for an apple orchard, some have valued it so low that they consider it an encumbrance, and begun digging the trees out; but of course this is under special conditions.

Vine Weeds.

1226. SIR,—What remedy is best to kill that troublesome weed commonly called vine weed or a species of wild convolvulus among raspberries, etc. It resembles a morning glory and has a small flower.

Oshawa.

JAMES A. RIDER.

We know of no simple method of eradicating this weed, generally called bind weed. If hoe and rake won't answer, better start a fresh raspberry plantation on cleaner ground.

Amaryllis.

1227. SIR,—Can you tell me how to make my amaryllis regina flower. I have had it 6 years and have had no bloom. Should it be left in one pot all the time or moved and the earth renewed. It has thrown out offsets till it completely fills the pot.

Prescott.

C. W. BEAVEN.

The abundance of offsets that have been allowed to grow is probably the cause of the amaryllis mentioned not flowering. Leave the plant undisturbed and grow it on until its next resting period, then just before active growth commences again, remove all the offsets. Repot the old bulb into rich loamy soil, giving plenty of drainage; water sparingly until the bulb has well started into growth. Remove all offsets as soon as they appear, these can be potted singly and grown on if required. The best time to repot amaryllis bulbs is just as growth commences after the resting period. Oftentimes a top dressing of rich soil is preferable to repotting, if the bulb is healthy and the drainage in the pot perfect.

W. HUNT.

Questions Answered.

Memorandum re Addition of Sal Soda to Paris Green Mixture.

In answer to the enquiry "can sal soda be used instead of lime in the preparation of paris green mixture?" the following information is submitted:—

When paris green mixed with water (at the usual rates 1 lb. to 100-200 gallons) is applied to certain classes of delicate foliage (as of stone fruits) a corrosive or "burning" effect has been noticed to follow, the leaves showing decided marks of injury as the insecticide dried upon them. This injurious effect may be entirely overcome by the addition of a small quantity of lime, the usual quantity advised being 1 lb. to each 1 lb. of paris green, though this is probably much more than is absolutely necessary.

Sal soda (more commonly known as washing soda) should chemically effect the same purpose as the lime, though in the apparent absence of recorded experimental data it would not be wise to generally advise the substitution. Arsenate of soda, as is well known, is more or less injurious to foliage, but the compound formed in the mixture under discussion would rather be arsenite of soda, regarding the action of which on foliage I cannot find any reference. I, however, am of the opinion, drawn from a general consideration of the whole subject, that lime would be better, or rather, safer to use, since the lime-arsenic compound is insoluble, while the soda-arsenic compounds are easily soluble in water and hence more likely to affect the foliage.

To obtain the neutralizing effect of 1 lb. of slaked lime, approximately 4 lbs. of ordinary crystallized washing soda would be required. This quantity of lime, however, as already pointed out much exceeds that absolutely necessary, and most probably 2 lbs.

of washing soda (equivalent to $\frac{1}{2}$ lb. of lime) would be ample. An experiment recently made in our laboratories showed that when 4 lbs. of sal soda were added to a mixture of 1 lb. of paris green in 160 gallons of water, considerable traces of arsenic went into solution; in other words, that there had been a slight decomposition of the paris green. When, therefore, through inability to conveniently obtain lime, sal soda is substituted, we should advise not more than 2 lbs. to each pound of paris green in the spraying mixture; but in view of the general results of soluble arsenic compounds on foliage, and in the absence of any definite data from spraying experiments with the mixture under discussion, it would be safer to use lime whenever possible. The arsenate of lime that may be formed in the fluid from following this course has been shown to be non-injurious to foliage and an excellent insecticide.

Perhaps it may be pointed out that when paris green is used in bordeaux mixture, there is no need for further addition of lime or other alkali to prevent injury to foliage, and that in this mixture both the fungicidal and insecticidal properties are unimpaired.

FRANK T. SHUTT, Chemist.

Dominion Experimental Farms.

The Sweet Chestnut.

Under notes and comments in the May number of the Horticulturist, I see you ask for information regarding the hardiness of the sweet chestnut in the north.

I have grown them here in nursery rows for the past 25 years; have 50 of them permanently set out and in bearing, and have proved them to be perfectly hardy, the frosts of all these years never having injured even a single tip of any of the thousands of the

trees we have had under cultivation. I am quite sure they would well withstand a climate much farther north than even Port Elgin. Please bear in mind that I am speaking of the American sweet chestnut, never having had much experience with the Japan varieties.

For family use there is no reason why every farmer or farmer's boy should not have a few nut-bearing trees of his own growing, and we know of no more enjoyable thing than a plentiful supply of sweet chestnuts with which to treat our acquaintances when they make us a friendly visit.

Port Elgin, Ont.

J. H. WISMER.

Analysis of Certain Brands of Lye.

In order to furnish information to orchardists regarding the relative strengths or values of certain lyes used in Canada in making spraying solutions for the destruc-

tion of scale insects and cleaning the bark before the foliage appears, analyses have recently been made in our laboratories of the following brands: Gillett's Perfumed 100 % Lye, Greenbank's Soapmaker, Babbitt's Pure Potash or Lye, Rock Potash.

ANALYSES.

	Alkali as Caustic Soda.	Alkali as Carb. Soda.
Gillett's Perfumed 100 %.....	92.48	2.77
Babbitt's Pure Potash or Lye...	85.15	4.98
Greenbank's Soapmaker.....	71.44	5.51

There is no potash in Babbitt's brand, the alkali present being soda.

A sample of rock potash obtained from a wholesale drug firm in Montreal gave the following data:—

Alkali as caustic potash.....	36.72%
" as carbonate potash.	43.24%
Total potash present, calculated as oxide (K ₂ O).....	69.31%

FRANK T. SHUTT, Chemist.

Dominion Experimental Farms.

Open Letters.

Hardy Nuts.

SIR,—In your question drawer a Mr. Kidd asks for information as to hardy nuts, etc. Mr. W. T. Macoun, in his reply, speaks of the filbert and hazel as not likely to set fruit in the neighborhood of Toronto, and gives his reasons.

I have grown the common English hazel for several years in the township of Tuckersmith, and the trees bear plentiful crops of nuts every year. The experience of several of my neighbors accords with mine.

Mr. Macoun may be correct in his remarks as applied to Ottawa, but as Toronto is in about the same latitude as Tuckersmith, I fancy the hazel will fruit there as well as it does in this locality; at any rate the cultivation of the hazel tree should not be condemned because it does not succeed at Ottawa. Yours respectfully,

Egmonville, Ont.

EDWIN CRESSWELL.

Tulip Culture.

DEAR SIR,—I understand from a Holland agent for the above bulbs that it is a common complaint all through America with the gardeners and florists that they cannot grow the double tulips with long enough stems to be of much service as cut flowers. This agent informed me this spring that he cannot sell the bulbs on this account, al-

though they are prized more by florists than the single varieties and would be in demand if they could be grown with long stems like those grown by me and which he had seen here this spring. For the above reason I had the accompanying photograph taken for your valued journal. There are eight varieties in the bouquet, both doubles and singles, with stems from twelve to seventeen inches in length; they were grown in the following manner:—

The bulbs were potted in the usual way, into six inch pots, 3 bulbs in each; the crown or bulbs out of the soil; the soil was a rich composite, three parts were of decayed sods cut from an old sandy loam pasture, and one part was composed of leaf mould, river sand and bone meal all mixed together. When all were potted, the pots were thoroughly watered, and I then appropriated a cold frame which was set up in a sheltered situation facing the sun. In the bottom of the frame I placed about two inches of sifted coal ashes, the pots were then placed on top of the ashes as close as they would set together; then they were covered about three inches deep with the sifted ashes and left until the first severe frost, when all was covered over with about a foot deep of coarse farm yard manure; there was no sash put on the frame. The first of the pots were brought into the greenhouse about Christmas, the blooms were about perfect in about 6 or 7 days after being taken in, so



FIG. 2081. TULIPS.

that by taking in a fresh batch from the frame every week there would be a continuous display throughout the winter. The manure acts for two purposes, first to prevent severe freezing, secondly to allow a person to get at the pots to take the same inside when wanted. The coal ashes act for several purposes also, as to prevent worms entering the pots from above or below; to prevent mice or rats eating the bulbs of which they are very fond; the young growth does not freeze so hard in ashes as any other material; thirdly, the growth made by the plants seems to stay just below the surface of the ashes until they are taken inside, and the time may be months—in any other material

the growth would be drawn and spoiled; fourth, if the ashes is left upon the pots or boxes containing the bulbs they will not require any water until the blooms are matured and cut; fifth, if the bulbs are in boxes, when the blooms are cut, the boxes may be placed outdoors, where the bulbs will be secure from frost, and mature bulbs for another season; sixth, it seems that the ashes prevent insects; seventh, unnecessary watering, and the cool temperature that the bulbs and roots are kept at by the ashes seem to encourage long stems. Be sure there is no wood ashes among the coal ashes used.

Niagara Falls South.

R. CAMERON.

Our Affiliated Societies.

WOODSTOCK.—The Horticultural Society held an interesting, though not very largely attended meeting in the council chamber last night, May 14th.

The following questions were received from J. C. Creelman, superintendent of the Department of Farmers' Institutes, and were answered as below.

What was the attendance at your meetings? Fairly good.

How were your members pleased with the addresses of the delegates? Very well pleased.

Was the lady speaker who addressed your society appreciated? Yes, very much.

Were the delegates well received at the schools and do you think this new departure a useful feature of the work? Yes.

In what branch of horticulture are your members most interested? Floriculture has the preference.

Have you any suggestions to offer in regard to next year's work? This was left in the hands of a committee, composed of the president, T. H. Parker, M. Dawes, J. S. Scarff and Robt. Woodroffe.

The matter of awarding prizes for the best kept cottage garden was discussed at length and left to the committee. The encouragement of the decoration of School grounds was also considered.

The secretary, J. S. Scarff, reported that 724 plants and shrubs had been given to 102 members as follows:

134 Cumberland raspberry plants.

35 shrubs.

38 apple trees, 38 pear trees, 38 grape vines, 63 palms, 126 rose bushes, 63 clematis, 63 geraniums, 63 asparagus plumosus and 63 asparagus springerli.

Mrs. Dawson, Mrs. J. H. Finkle and Mrs. Harry Davidson have consented to read papers before future meetings of the society. A number of accounts were also passed. The members of the society expressed themselves highly pleased with the attendance at the recent public meeting held at the Collegiate, under the auspices of the society, and a cordial vote of thanks was tendered the musicians and others who kindly gave their assistance on that occasion.

Mr. Whaley followed President Patullo's suggestion with regard to a prize for cottage gardens, with a suggestion to give one to school children, who would make the best flower garden—work and care of same to be done exclusively by themselves. This was endorsed by the meeting and a committee was appointed to carry out both suggestions. It consisted of President Patullo, Secretary Scarff, R. W. Woodroffe, M. Dawes, T. H. Parker and M. Richmond, who will probably meet at 4 o'clock this afternoon in T. H. Parker's office.

MITCHELL.—A most enthusiastic meeting was held under the auspices of the Horticultural Society here on April 16th. In the afternoon the pupils of the high and public schools gathered at the town hall, in charge of the teaching staff, to hear Mr. Alex. McNeill and Miss Rose, of Guelph. The scholars were very much interested in what

they heard and were asked to write an essay on the subject matter of the lectures the next day.

In the evening the hall was crowded to the doors by the most select and enthusiastic audience that ever came together in the town. President A. Dalton Smith, M.D., occupied the chair and with him on the platform were Vice-President W. Elliott, B.A., all the clergymen of the town and outlying districts and a few others. The hall was splendidly decorated with plants and flowers, and the musical selections given throughout the program by Mrs. F. B. Holtby, piano, Mrs. F. A. Campbell, vocal; Miss Pearl Waterhouse, violin, and Prof. Bridgeman, piano, were very choice. Miss Rose spoke on the subject, "Why I have a garden," and Mr. McNeill on "Plants, Shrubs, etc., for the home plot," and both received a splendid hearing. Each of the clergymen present said a few encouraging words expressing their sympathy with the objects of the society and their interest in its operations. This is what I have long contended for—the co-operation of the churches with us in our work, and in this town we are getting it. Everybody seemed to be pleased with the meeting and the society is likely to grow in popularity and usefulness as one of the results. We have now a membership of seventy-four and expect to go on increasing. Already a deeper and more active interest is being manifested throughout the town in fruit and flower culture and general home ornamentation.

T. H. RACE Secretary.

ORILLIA.—The joint committee of representatives of the Horticultural Society, the Board of Trade and the Town Council which has of late been considering ways and means of beautifying Orillia, is this week issuing a circular to the citizens, appealing to them to lend their assistance, an appeal which it is to be hoped will not be made in vain. After referring to the great business benefit that Orillia had derived from the tourist trade during the past three years, and to the unfavorable impression which our dirty streets had made on many visitors, the committee makes these proposals as a remedy:

(1) That shade trees be planted along the boulevards throughout the town, wherever there are not trees already. The Town Council offers to supply trees and have them planted at a cost of fifteen cents per tree (less than one-half of the actual cost), provided application for trees be filed with the Town Clerk before May 1st. The committee would recommend maples and elms as the best ornamental trees for this purpose. The last named will thrive best in any moist, heavy clay soil, and probably in most of the southerly portion of the town. Trees should be planted during the latter part of April or first part of May, and should be protected from cattle and small boys by posts or tree boxes, and from drought by a small quantity of sawdust on the surface of the ground round the trunk. The maples should be watered regular-

ly about once a week (not oftener) for the first month or two after planting, but the elms should be watered twice each week.

(2) The Town Council has decided to have the shade trees on the streets regularly and properly trimmed by competent men, and in future private citizens wishing to have the trees on their boulevards trimmed must not have it done themselves, but should make application to the Town Clerk, when it will be promptly attended to.

(3) That the grass and weeds be kept cut on the boulevards and that an effort be made by all individual citizens to improve the appearance of the boulevards throughout the town. Arrangements can be readily made to have such work done for the season at a very reasonable rate, and any member of the Horticultural Society, Board of Trade or Town Council will gladly furnish you with the names of persons willing to undertake such work.

(4) That each citizen be asked to assist in the work of keeping the streets clean, by refraining from throwing on the streets scraps of paper or other refuse, and to endeavour individually to keep others from doing the same. Receptacles for waste paper, etc., will be placed at the principal street corners, so that there will in future be no excuse for littering the streets with such refuse.

(5) That each individual citizen will not only do all in his or her power to beautify the streets of the town, of which we are all so proud, but that each will also endeavor to improve his or her property, so that we may have in every sense a clean, healthful and beautiful place of residence. If all, or a majority will assist in this, the result will be a vast improvement in the whole. Any member of the Horticultural Society or of this Joint Committee will consider it a pleasure to assist by information or advice anyone desiring such, in the earnest hope that concerted action will be taken upon the suggestions embodied in this circular, and result in the general good.

The Joint Committee is composed of Messrs. C. L. Stephens, chairman; G. H. Clark, secretary; E. C. Roper, W. S. Frost, G. Street, S. Reeve, S. H. Black, F. Sollitt, J. H. Wilson, Wm. Bacon, A. B. Thompson, J. P. Secord and G. T. Tipping. There is no doubt that if the committee perseveres in its good work, and receives the backing it should get, the result will be to revolutionize the appearance of the town, and to make Orillia the neatest as well as the most picturesquely situated summer resort in Canada.

ELMIRA.—The local paper of this town devotes a whole column to an account of the meeting held by Mr. McNeill and Miss Rose, whom they call "two plain everyday people who will make hosts of friends wherever they go; two lecturers who have not merely the theory of the subject, but who also speak from practical experience."

KINCARDINE.—On Friday evening, Mr. McNeill, of Walkerville, and Miss Rose, of Guelph, delivered addresses in the town hall under the auspices of the Kincardine Horticultural Society. The former took for his subject: "Plants, trees and shrubs for the ordinary town lot," and the latter gave an admirable address in which reasons were set forth "Why I have a garden." The attendance was

not nearly so large as the excellence of the addresses warranted. Those who were present received much practical instruction and valuable suggestions were made as to beautifying the plots, lawns and streets of the town in which we live. In some towns prizes are given for the best kept gardens, plots and lawns, and if the Kincardine Horticultural Society would take the matter up the town would be greatly beautified. There should be two or three classes so as to give the working-man's little cottage and plot an equal chance in his class with that of his neighbor of larger premises and facilities in his class. The Horticultural Society could do very practical work by instituting such a competition. Mayor Mackendrick presided as chairman of the meeting.

LONDON.—During the first week in April each member of the London Horticultural Society received from the executive of the Society a package of seed, consisting of one large packet of the following varieties.—

Asters, New Victoria; Scabiosa, mixed; Antirrhinum, mixed; Phlox Drummondii, mixed; Nasturtium, dwarf mixed; Dianthus Heddewigii, mixed, and one packet each of the following Sweet Peas: America, Navy Blue, Blushing Beauty, Mars, Countess of Radnor, Black Knight, Katherine Tracey, Emily Henderson, Mrs. Eckford, Mrs. Joseph Chamberlain.

The members were exceedingly well pleased at receiving so liberal a distribution.

R. W. RENNIE, Sec'y.

LONDON.—The London Horticultural Society held their second open meeting this year on the evening of May 3rd, in the auditorium of the Y. M. C. A. Building, the meeting being called to distribute the plant premiums provided by the Canadian Horticulturist. The meeting was very well attended considering the short notice given. Dr. C. J. S. Bethune occupied the chair, the president, Mr. J. A. Balkwill, having a severe cold.

Before proceeding to distribute the premiums Dr. Bethune gave an exceedingly interesting and instructive address on the commoner destructive insects, illustrating his remarks by greatly enlarged colored drawings of insects. Mr. Wm. Gammage, who has been so successful with his carnations at the Pan-American, was to have spoken, but owing to indisposition was unable to do so.

During the evening the members were favored with songs by Mrs. Geddes and Miss Agnes Templeton, accompanied by Miss Templeton. The Society tendered these ladies a hearty vote of thanks for contributing so largely to the enjoyment of the evening.

R. W. RENNIE, Sec'y.

CAYUGA.—The horticultural society here proposes putting out a cedar hedge in front of the High School two hundred feet in length. When is the best time? The soil is heavy clay, but we can dig a trench and fill in with good loam.

J. E. SKEDE, President.

The hedge may be planted any time this month, when the ground is in good condition; indeed most experts claim that June is the very best season for transplanting evergreens.

OUR BOOK TABLE.

EXPERIMENTS WITH FERTILIZERS is the title of an interesting pamphlet which will be sent free on application to Experiment Farm, Southern Pines, N. C. The book is well illustrated. Other publications free on application are; "Plant Food; "Truck Farming" and "Experiment Farming."

A NEW BOOK ON GARDENING.—The Farmer Co., Philadelphia, have just published a new book on gardening entitled, "The Garden Book for Practical Farmers," written by Mr. T. Greiner. Mr. Greiner has for thirty years been preaching and practicing the gospel of good gardening with marked success, and hence is well qualified for the task. Thirty years of actual soil contact by a man who loves his work and follows it in all its detail with indefatigable patience, means much when it comes to teaching others. In the garden book the author epitomizes that thirty years' work in a most entertaining and instructive manner. The man who has a garden, large or small, and the man who intends to have one, will be equally interested and profited by a study of its pages. It is one of those books which inspires its readers to reach out for better results through more thorough work, and is in line with the previous writings of Mr. Greiner, which have done so much to advance the gardening interests of the United States. The book is handsomely printed in clear type on fine paper, containing 129 practical illustrations. The price is 50 cents, postpaid. It is right for every day reading and right for every day reference.

CYCLOPEDIA OF AMERICAN LITERATURE (third volume) comprising suggestions for the cultivation of horticultural plants, descriptions of the species of fruits, vegetables, flowers and ornamental plants sold in the United States and Canada, together with geographical and biographical sketches by L. H. Bailey, professor of horticulture in Cornell University, assisted by Wilhelm Miller, Ph.D., and many expert cultivators and botanists, illustrated with over two thousand original engravings, in four volumes; price \$5.00 a volume.

The third volume of this magnificent work has just come to hand. A more valuable work for fruit growers and gardeners could not be offered, for it is a library in itself. Every branch of horticulture is treated upon, and details given, as could not be got in a library of different books costing many times as much.

We shall be glad to fill orders for this book delivered in Canada at publisher's price.

When the Bride and Groom are Nervous.

Embarrassment appears to be the natural concomitant of matrimony. At least this is true in the incipient stages. Invariably, however, there is a striking contrast between the relative composure of the man and the woman. Both are nervous but never both at the same time. If they come a week beforehand to make arrangements she is rattled and he is cool; while on the day of the ceremony she rises to the occasion and he sinks under it. Thus, I have never seen a bride who was scared; I have never seen a groom who was not.—REV. D. M. STEELE, in the Ladies' Home Journal for June.

Ask your grocer for

Windsor Salt

For Table and Dairy, Purest and Best

The Best Time to Answer a Letter.

The best time to answer a letter is while you are under its spell and before your interest in it has grown cold. Home letters should be regular. The glow and impulse of love, stimulated anew, will be responsively stirred, if the reply is not too long deferred. I am always sorry for families who suffer the lines of communication between them to weaken or rust because of carelessness in writing, and many a time my heart has ached for the disappointment visible in an old face, when some young Jean or Molly, whose letter is wistfully anticipated, has forgotten to send it at the right time.—MARGARET E. SANGSTER, in the Ladies' Home Journal for June.

CENTRAL NURSERY

Booking Orders for Fall and Spring.

Kindly look over our catalogue before placing your orders for

TREES, SHRUBS, ORNAMENTALS, ETC.

We can please you.

A. G. HULL & SON, St. Catharines.

Books for Fruit Growers.

BAILEY—Annals of Horticulture	\$1 00
Field Notes on Apple Culture	75
The Nursery Book	1 00
The Survival of the Unlike	2 00
The Forcing Book	1 00
Horticulturist's Rule Book	75
Garden Making	1 00
Plant Breeding	1 00
Pruning Book	1 50
Principles of Fruit Growing	1 25
Cyclopedia of American Horticulture, 4 vols., per vol.	5 00
CARD—Bush Fruits	1 50
CROZIER—How to Grow Cauliflowers	1 50
GREEN—Vegetable Gardening	1 25
GREINER—How to Make the Garden Pay	2 00
New Onion Culture	50
HUNN & BAILEY—The Amateur's Practical Book	1 00
MAYNARD—Landscape Gardening	1 50
MITCHELL—Tomato Culture	15
NICHOLSON—Dictionary of Gardening, 4 vols	20 00
REXFORD—Flowers	50
SAUNDERS—Insects Injurious to Fruits	2 00
TAFT—Greenhouse Management	1 50
VOORHEES—Fertilizers	1 00
WEED—Spraying for Profit	50
WRIGHT—Botany	50

Orders accompanied by the Cash may be sent
Office of CANADIAN HORTICULTURIST.

Landscape Gardening as a Profession For Women.

Landscape gardening is a calling that must be learned the same as any other. A young man would be expected to devote some years to its study and practice before he could be intrusted with the commission of work of much importance, and there is no reason why less should be expected of a woman. Good work is demanded, and in order to meet the demand there must be a thorough knowledge of all its details, and this can only come through practical experience. If a woman has aptitude for the profession, and is willing to serve an apprenticeship at it, as a man must, there is no reason why she should not undertake the work, provided she is physically strong.—EBEN E. REXFORD, in the Ladies' Home Journal for June.

Free Help Exchange

This department is to be opened for the benefit of the numerous applicants to this office for opportunities of work on a fruit farm. Our fruit growers also are very often in great need of help, and this will lead them to meet the persons who are desirous of work.

Those wishing help should mention kind of work, wages with or without board, length of engagement, etc.; those wishing employment should give experience, reference, age, kind of work wanted, wages expected.

These notices will be published free in two successive issues of this journal.

Situations Wanted on a Fruit Farm.

YOUNG MAN, 21 years of age, eight months' experience on farm in New Brunswick—strong—not afraid of work, has some experience with fruit. Address C. B. FROST, care of General Post Office, Montreal, Que.

TWO YOUNG MEN, 16½ and 18 years—successful career at Glenwood School, England; 18 months' experience in Germany; 15 months in France—speak both languages—want year's experience on a fruit farm in Ontario.

Soap-Bubble Blowing Extraordinary.

Every child knows and every grown person remembers what fascination there is in the pastime of blowing bubbles. The anxiety attendant on the bubble's gradual expansion in size, the delight in its iridescent hues and curious reflections, and the satisfaction felt when the miniature globe is finally launched on its brief career are familiar to all. But think of being able to carry about a bubble on a flower, or to put a flower inside of a bubble, or to make a pinwheel revolve in one, or to play music through one, or to put six bubbles inside of one another! Magic? Not at all. It is easy enough, if you only know how; and in an early number of the Ladies' Home Journal you will be told all about it.

I once asked my dainty, plainly dressed maid, why working-girls were such unfit clothes on the street. "Well, you see, ma'am," she said, half in pity, half in defense, "the poor things have no other place to wear them." Do you suppose that is why so many of their mistresses habitually do the same thing?—HELEN WATTERSON MOODY, in the Ladies' Home Journal for June.

USE ULRICH'S ENSILAGE CORN

MAMMOTH WHITE GIANT PROLIFIC—

Yielded in Agassig, B. C., Government test, 1898, 38 tons and 450 lbs., highest yield of any kind in any province.

YELLOW DENT IMPROVED LEAMING WHITE CAP YELLOW DENT RED COB

Don't Try the Cheapest—"Blood Will Tell."

E. R. ULRICH & SONS

Main Office: Springfield, Ill.

Ask your dealer for Ulrich's Seed Corn. Take no other.

Seeds That Surely Grow.

The cost of seeds compared with the value of the crop is so small that a few cents saved by buying second-rate seeds will amount to many dollars lost when the harvest is gathered. Farmers have found out by many costly failures what a risky thing it is to buy seeds without being pretty sure that they are reliable and true to name. The latest catalogue of the seed house of D. M. Ferry & Co., of Detroit, Mich., is a reminder that thousands of farmers in the United States and Canada have pinned their faith to the reputation of this great firm. During a business career approaching half a century in time, Ferry's seeds have won an annual increase in popularity, which is perhaps the best evidence that they grow and give satisfaction. Ferry's Seed Annual for 1901 is a useful guide in selecting seeds for the farm, the truck garden and the flower garden. It is sent free on application.



BULL-STRONG!

....PIG-TIGHT....

An Illinois farmer said that after harvest he had fully 800 bushels of loose oats on the ground that he could not secure any benefit from, because the fence around the field would not turn hogs. Figure the loss for yourself. He also said, all this would have been saved if he had used the Kitzelman Woven Wire Coiled Spring Fence, and the value would have gone a long ways towards paying cost of the fence.

With the Duplex Machine any farmer can make it himself at the actual cost of the wire. Catalogue free for the asking.
C. C. DAVIS & CO.
Box C-119 Freeman, Ont.



Photo by Miss Brodie

FIG. 2091. REQUA.

THE CANADIAN HORTICULTURIST

Vol 24

1901

No 7

* * JULY * *

THE REQUA GRAPE. (ROGERS No. 28).

A FINE table grape, supposed to be too late for Canada, but ripening well in Niagara district. A sample of the kind of grape which should be grown for export, but the vine is scarcely productive enough to be profitable.

ORIGIN: E. S. Rogers, Salem, Mass., a hybrid between the Wild Labrusca, or Mammoth Fox grape, of Massachusetts, and a European variety. Mr. Rogers produced his seedlings in 1856, and at first introduced them only by their numbers.

VINE: fairly vigorous and moderately productive.

BUNCH: large, shouldered, moderately compact, but sometimes poor.

BERRY: large, round; skin, thin, wine color with thick bluish bloom. Pulp, tender, juicy; flavor, sweet, sprightly; seeds, two or three, of medium size.

QUALITY: dessert, very good.

VALUE: 1st class for home or foreign market.

SEASON: Sept., Oct. and Nov.

GRAPE GROWING.

EXPORT.

THE grape growers of Ontario will be pleased to learn that arrangements have been made by the Hon. Sidney Fisher for a continuation of the experiments in the export of our grapes. Our fields are so wide in proportion to our markets that we can easily produce far more grapes than we can sell in our own country, but, if we can succeed in creating a demand for them in Great Britain, there would be no

limit to the market. Much has already been accomplished in the way of overcoming the prejudice against this fruit, but much remains, and we are glad that the work is to be pushed vigorously. About 100,000 lbs. of grapes, chiefly Rogers, are to be forwarded next autumn, and this should be sufficient to open the way for a constant trade; and even if the prices are not in advance of those usually received at home, this extension of our markets will open up

the most ready sale for ordinary varieties at home.

The favorite varieties of Rogers' seedlings, so far, have been Wilder, Lindley, Agawam, Salem and Barry. There are others that are excellent, as Massisoit, Merrimac, Requa and Herbert; and where they succeed and are sufficiently productive, these would all be good export varieties.

GIRDLING.

Some of our gardeners, who grow the Wilder, make a practice of girdling the vine for enlarging the size and hastening the ripening period. The success of their efforts has caused much jealousy at fairs over the exhibits, many claiming that such grapes ought not to compete with those not girdled or ringed. In our opinion it is a method of treatment open to any one who pleases, and in no sense only practicable by professionals, and therefore need not disqualify an exhibit any more than using a special fertilizer. If the judge finds a bunch of grapes on exhibition of which the flavor is inferior because ringed, let him count it down; or if it is abnormal in size, and so less desirable for the table, let it lose in the marking. We see no reason for a judge to question how the grapes were grown, so long as the samples are satisfactory and come under the proper class.

Prof. S. P. Maynard, of the Mass. Agricultural College, is an advocate of girdling, and we give his views as they appeared. Popular Gardening: "I have practiced girdling more or less for many years to test its

value in a scientific and economical way. The numerous experiments made in the college vineyard lead to the following results:

1. No injury to the vines girdled has ever been detected, even where the girdle was made on the main trunk near the ground.
2. The time of ripening is generally hastened by one or two weeks.
3. Careful sugar tests show no injury to the quality of the fruit.
4. The fruit was larger, more beautiful and sold for from three to five cents per basket more than that from ungirdled vines.
5. The best time to perform the work has been found to be early in July.
6. For reasons of economy of the forces of the vine, only a part of the cane of each vine should be girdled and only those that are to be cut away.
7. Annual arms should be grown for the purpose of girdling to bear the fruit, and a few unbearing ones for spurs to produce the canes for next year's girdling.
8. The best results were obtained when the ring of bark taken out was from one-eighth to one-quarter of an inch wide, according to the size of the cane girdled.
9. Good results were obtained when wires were twisted about the canes, but only when twisted very hard with pincers. For this purpose about No. 20 annealed wire was used and the work done late in June.
10. From our experience we believe that girdling will result in profit to the vineyardist, and in much pleasure to those who are growing choice late varieties.

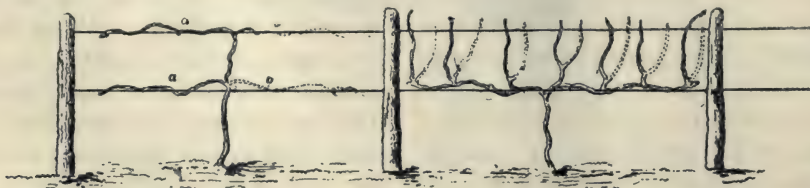


FIG. 2092. PROF. MAYNARD'S PLAN OF TRAINING THE VINE FOR GIRDLING.

In our practice we have worked out a method of girdling that may be applied to any system, but is most satisfactory where one cane is allowed to grow ungirdled on one side of the vine, but not permitted to grow fruit, while the cane of the previous year has been girdled and is producing fruit.

In our illustration *a* represents the cane that is to bear the fruit, while *b* is the spur made by cutting the girdled cane off. The girdle should be made three or four (3 or 4) buds from the main cane or arm so as to insure enough good buds for a good cane. After fruiting the girdled cane is cut back to a spur, and the opposite cane is allowed to bear. By this system there can be no possible fear of injury to the vine.



FIG. 2093.
GIRDLING WITH
WIRE.

The wire must be twisted so as to almost cut into the wood, and if the vine is growing slowly, no very marked results will follow, but if they are growing very fast, or if the wire is given about all the twist it will bear without breaking, it will be found almost as effectual as the knife.

We had a knife made from one solid piece of steel, but it was not properly made, and did not do as good work as one made in the same form of thin steel might. I think if two pieces of thin knife steel were riveted to the cleaner point it would do very satisfactory work. The two blades should be set about 3-16 of an inch apart.

Some one has suggested a knife and cleaner made like pruning shears, with blades side by side, and cleaner to follow the cut. Here is a chance for some inventive genius.

BRACING GRAPE TRELLIS.

A very simple plan of bracing the end posts of the trellises in our vineyards is by a wire attached to a stone sunk into the ground. We have practiced it for some years and find it most convenient and satisfactory. Miller, of Ohio, describes the method thus: "The letters *a, a, a*, show the wires fastened to the end post *b*, which is inclined outward from the row. Near the top of this post is also fastened a piece of medium weight galvanized wire *c* of a sufficient length to reach below the surface of the soil beyond the reach of frost; the buried end is fastened to a good sized stone, that will keep the inclined post and also the wires in their proper position. The ground about the stone and wire should be well firmed."



FIG. 2094. VINEYARD TRELLIS BRACING.

CO-OPERATIVE COLD STORAGE.—A writer in American Agriculturist wonders that farmers do not unite and take the advantage of cold storage for their apples. They sell at 75c. to \$1.00 a barrel apples which would bring in late spring \$3.00 a barrel; and

thus allow the speculator to make greater profit than the grower. A private cold storage plant might be too expensive for the ordinary fruit grower, but if several would combine the thing would be practicable and most remunerative.

A NOTABLE AMATEUR GARDENER.



FIG. 2095. RIBBON GARDENING WITH CANNAS AND YUCCA.

MR. Alexander McNeill, when lecturing before the Paris Horticultural Society, met our friend Captain Peter Cox, and reported to us his marked success in fancy gardening. He also forwarded us a set of photos of his grounds, some of which we reproduce for the benefit of our readers. Mr. Cox has a lawn a little over an acre in extent, which slopes to the east, and on it are artistically arranged horse-shoes, circles, diamonds and long borderings, the effect of which is of a most pleasing character. These designs are made on paper by the Captain himself and

handed over to his gardener to carry out the details. Having made a special study of his work the Captain's services are most valuable in lecturing before Horticultural Societies on ornamental gardening, or assisting village improvement societies on special lines of their work.

The president of the society at Preston has received from Mr. Cox three hundred plants to be distributed among the pupils for cultivation at home, who are to receive prizes for the best grown specimens at the end of the season; he also proposes to give a silver medal for the best collection of

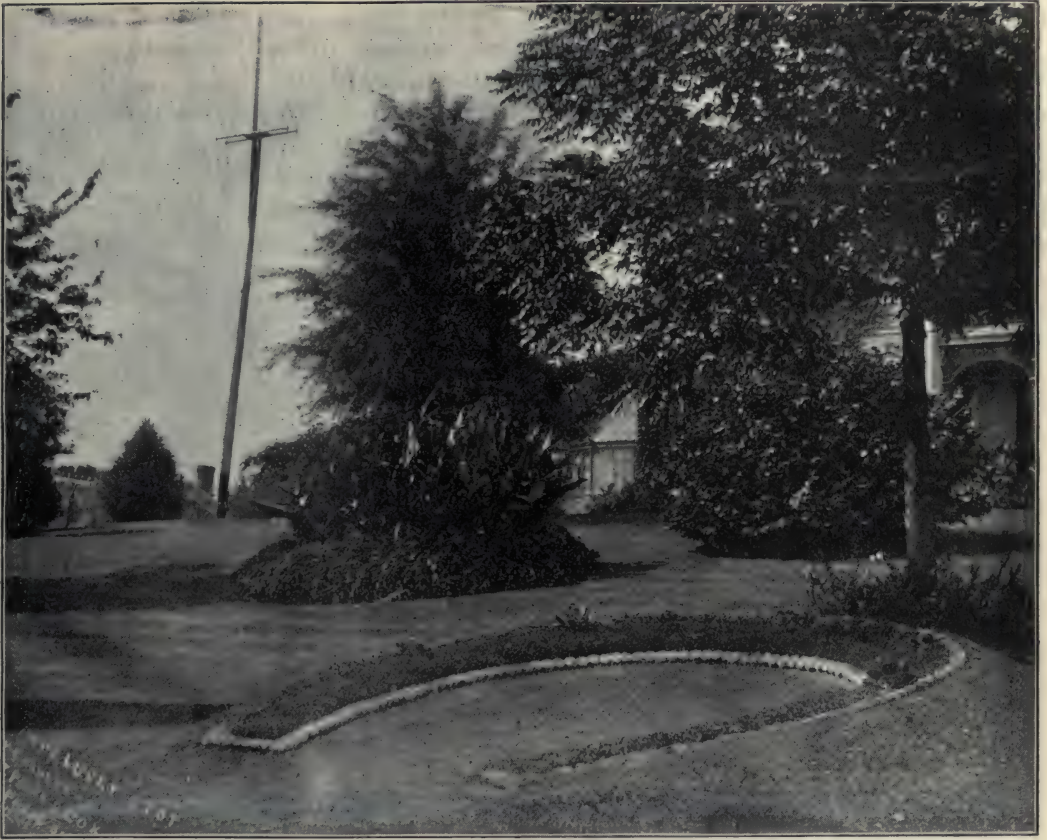


FIG. 2096. THE LUCKY SPOT, WITH HORSE SHOE RIBBON BED.

plants raised by any school boy or girl, at an exhibition to be held for this purpose in the fall.

Every year Mr. Cox sets out from 15,000 to 20,000 plants from pots which consist of alternanthera (five varieties, orange, pink, green, bronzy red, light red), echeveria, sedum, several varieties of coleus, ageratum, alyssum, lobelia, petunia, sweet peas.

The grounds are also decorated with cannas and dracenas in tubs, of which latter there are a couple of dozen varieties, and which always look graceful. These have been kept growing for years, having been bought when very small, and placed within reach of any one who is fond of their care.

The situation is elegant, overlooking the town and the Grand River, so that an enthusiast may sit here for hours feasting his eyes upon flowers about him, and the beautiful landscape.

Mr. Cox commends the coleus most highly for bedding out; it may be so easily grown from seed in a cigar box placed in a sunny window in March, with a small pane of glass covering it. As the days go by and the little seedlings come to the surface, they are continually changing color, and one finds great delight in watching them develop, wondering what colors each day will bring forth. The coleus too is showy at a distance, even the horsemen galloping by

Mr. Cox's place will exclaim, "Hello, there's a nice place."

"In the long border," says Mr. Cox, "next the long hedge, beginning inside, I planted verchifeldi and golden coleus, blue lobelia, dwarf alyssum, golden green alternanthera, and as edging, echeveria. This border is the finest blend I know, and I have often been told I ought to have a patent on

it. Having made horticulture a study all my life, I am always ready and pleased to help any one with advice, or to give away cuttings and plants."

Such men as Peter Cox deserve encouragement, for they are most valuable citizens, contributing to civic improvement both by example and precept.



FIG. 2097. THE ENTRANCE TO CAPT. PETER COX'S GROUNDS.

LANDSCAPE ADVERTISING is the subject of a fine paper by F. L. Olmstead, landscape architect of Boston, read before the American Park and Out-door Association, denouncing that sort of public advertising which defaces the otherwise beautiful landscape. He advises that the association in conjunction with municipal organizations endeavor to secure the adoption by park commissions of carefully drawn regulations governing in a clearly reasonable and moderate manner the display of advertising signs upon property fronting on the parks and open spaces under its control.

Perhaps our local Horticultural Societies could help in the work by discouraging the common practice of painting on rocks and barns in huge letters tobacco and medical

advertisements which are an eyesore to every man of correct taste. Possibly they could adopt the plan of the Twentieth Century Club of Boston which sent out to property owners cards for signature bearing the following statement:

"I hereby agree to permit no advertisement on my property, other than plain and inoffensive ones necessary to my tenants' business or my own. I will endeavor by every means to prevent the disfigurement of the landscape and highways.

"Town of _____ State of _____

"Instructions: When the names of eight persons have been signed to this promise, place a one-cent stamp on the other side and mail it."

PAN-AMERICAN HORTICULTURE—II.



FIG. 2098.

OUR CANADIAN FRUIT COURT.—In our previous letter we gave a brief description of court in the Horticultural building, and since that time we made another visit and secured a couple of snaps which will give our readers some idea of the installation and of the exhibit. Fig. 2098 shows us a glimpse of the arches described on page 217, which were indeed excellent and appropriate, in design and execution. Mr. Collins, Mr. Bunting's assistant, and the young lady stenographer are also seen with the exhibit, and in the interior the trophy, with an exhibit of domestic canned fruit quite creditable to Canadian house wives. Unfortunately no preparation was made in 1900 for an exhibit of bottled fruit. Mr. Bunting intends having a good collection of currants, gooseberries, cherries and other early perishable fruits put up in acids for exhibition after their season is over.

Fig. 2099 shows the court from another side, with one of the tables of cold storage apples set forth. These apples form the chief part of the exhibit for the months of May and June, and even in July and August while fresh fruits are still scarce, excepting small fruits, these apples, the crop of 1901,

must necessarily be a prominent feature in the exhibit. Fortunately these are coming out of cold storage in excellent condition, even Holland Pippin and Blenheim Orange. Some of them have been on the tables since the 18th of May, over a month, and are still looking well, not over 50 per cent. of them requiring removal through decay; a good proof of the fallacy of common notion that fruit will not stand up well after being in cold storage. We are pleased to see the testimony of American papers to the excellence of this exhibit, and to find that even Americans are admitting that the Ontario exhibit ranks second to none in the Horticultural building. For example the New York Fruit Trade Journal, under date of June 8th, writes :—

“There are some excellent specimens of Canadian apples, some Spys being perhaps a little better than anything in the New York State exhibit. The exhibit from Illinois is pronounced inferior to the New York standard. Catawba grapes are keeping remarkably well. None of them have been removed yet on account of decay. Black grapes are about done.”

A correspondent writes from Buffalo on the 20th June :—“Ontario's exhibit is attracting a good deal of attention on account of the fine quality of fruit placed upon the tables. Expressions of wonder and admiration are heard on every side that it is possible to display fruit of such fine quality.

The Jersey Advocate and Dairyman of New York City says :

“Canada contributes a most interesting and instructive exhibit from Ontario.

It is to be hoped that Americans who see this exhibit will carry away with them a more correct idea of the land of the maple leaf and beaver than most of us now possess. The average American deludes himself with the idea that Canada is a land of snow, forests, rocks and rapids, with no particular products except pale ale, toboggans and canoes.



FIG. 2099.

Let them go to the Ontario exhibit at the Pan-American and be undeceived. Here they will find luscious strawberries, and wine made from the delicious grapes grown in St. Catharines. In the season, from this one station alone (St. Catharines) are shipped daily from ten to thirteen carloads of grapes and peaches. Apples of thirty varieties, Northern Spy, King, Spitzenburg and Yellow Cranberry included, are shown in profusion; while the exhibit of canned fruit and berries, "done up" by the Canadian farmers' wives, from their own cultivation, is an enlightenment as to Canadian product on.

Great bunches of crimson clover ornament the stands, and this growth is an object of much curiosity to the city-bred visitor. As one of the very obliging gentlemen in charge of the exhibit very kindly explained to me, it is used as a "cover crop" in the orchards and vineyards in the fall, and in the spring is plowed under as a fertilizer. The section of the Horticultural Building in which stands the Ontario exhibit is artistically draped with ropes of the maple leaf—Canada's emblem.

If the attention it deserves is given to this exhibit there will be less excuse for mistaken ideas with regard to "Our Lady of the Snows."

And this is creditable to Ontario when you consider the thousands of dollars spent by New York State in collecting, while our own exhibit was not prepared until the very end of the apple season, and was accomplished at comparatively little cost.

On Thursday, the 27th ult., we visited the Horticultural Building again and of course took notes of many exhibits besides our own. Illinois and Missouri show some magnificent Ben Davis, Willow Twig and Gano apples. We must admit that we cannot grow Ben Davis equal to some of the States where the

conditions exactly favor that special variety, but, aside from these special varieties, they have nothing on exhibition superior to our Ontario apples. New York state has a larger quantity of apples, but the many inferior varieties shown much depreciate the sum total of the exhibit. Just now a very fine collection of over one hundred varieties of gooseberries is on exhibition from Geneva, but they are too green yet to count much for the student of pomology. A magnificent exhibit of Marshall strawberries was also shown in this exhibit.

The first strawberry exhibit in the Horticultural Building was made by Ontario on the 20th of June, since which time numerous exhibits of strawberries have arrived. So far the following is the list of Ontario strawberry exhibitors:—

- Jas. A. Patterson, St. Catharines, Ont.
- Thomas Beattie, St. Catharines, Ont.
- Alfred Griffis, St. Catharines, Ont.
- T. W. Freeman, St. Catharines, Ont.
- C. M. Honsberger, Jordan Station Ont.
- James Titterington, St. Catharines, Ont.
- A. M. Smith, St. Catharines, Ont.
- Albert Pay, St. Catharines, Ont.
- A. Railton, Fonthill, Ont.
- Luther Dunn (florist for Mr. Riordan), St. Catharines, Ont.
- George Law, Niagara Falls South, Ont.
- G. C. Biggar, Niagara Falls South, Ont.
- S. D. Ferminger, St. Catharines, Ont.
- S. M. Culp, Beamsville, Ont.
- Vanduzer & Griffith, Grimsby, Ont.
- J. E. Bromley, St. Catharines, Ont.
- A. A. Leslie, Aylmer, Ont.
- Gordon Bunting, St. Catharines, Ont.
- Robert Thompson, St. Catharines, Ont.
- Mr. Luther Dunn of St. Catharines also shows a large number of varieties in pots, which are very handsome.

Large as the Horticultural building is, it will not contain all of the horticultural exhibits, and many semi-tropical ferns, palms, and various other species of trees, vines,



FIG. 2100.

shrubs and flowering plants are planted in different localities about the building.

Absence of straight lines in laying out the walks, with an apparent natural carelessness in connection with the whole plan, together with the blending of color with the quiet green grass plots, conspire together to render the surroundings of the Horticultural building one of quiet beautiful significance. The area called the Music Garden contains about two hundred beds, aggregating over three hundred thousand square feet, comprising many different sizes and containing a great variety of flowering plants, which will be extremely gay with color during the Exposition.

One hundred and fifty thousand bulbs were planted last fall, consisting of hyacinths, tulips, narcissi, jonquils, Spanish iris, etc. These bulbs are now bedecking themselves in the brightest and most gorgeous colors.

They will be at their brightest and best in May, and from this time on this flower

section will constantly change, being arranged to present a succession of flowers month after month during the whole season.

All these beds are filled with exhibits contributed by upwards of fifty of the leading horticultural firms of the country.

Fig. 2100 is one of our snaps showing a fine bed of tulips planted by James Vick & Sons, of Rochester, one sample of the many which attract the attention of the visitor; to the right is seen a portion of the famous triumphal bridge which, they say, was destined to express the triumphal struggle of the people of the United States to free themselves from the institutions of despotic ages and governments.

An interesting feature of the Horticultural Department will be the series of flower shows to be held from the opening day till the closing. The dates have been selected to suit the largest range of exhibitors, and are as follows:

Carnations—May 1 to May 8.

Tender roses—May 21 to May 25.

Paeonies—May 28 to June 7.

Hardy roses—June 18 to June 25.

Sweet peas—July 23 to August 2.

Gladiolus—Aug. 6 to Aug. 17.

Asters—Aug. 27 to Sept. 7.

Dahlias—Sept. 17 to Sept. 27.

Chrysanthemums—Oct. 22 to Oct. 31.

In closing, we would appeal to all our directors and to all our Horticultural societies to keep up weekly shipments of fruit to Mr. W. H. Bunting during the season, entering them under their own name, or under that of the society; and everything new sent forward during the season will be credited in making up the diploma.

APPLE BOXES.—The regulation size of the apple boxes shipped to England from New York is as follows: *Inside* measurement, $9\frac{3}{4}$ inches high, $10\frac{3}{4}$ wide, $20\frac{3}{4}$ long.

This is about the same as the boxes adopted at the last meeting of the Ontario Fruit Growers' Association at Brantford, which was, *outside* measurement, $10\frac{1}{2} \times 11\frac{1}{2} \times 22$ inches.

THE FRUIT MARKS ACT.

THIS important bill was passed by the House of Commons and was to come into operation on the 1st of July, 1901, but unfortunately for the fruit trade of Canada, and for every honest fruit grower in Ontario the thing has been almost nullified by the Senate. This body, evidently ignorant of the importance of clauses 6 and 7, actually took upon themselves to cut out what had been worked out by the wise heads of the Ontario Fruit Growers Association with the assistance even of those larger buyers and speculators, whose operations were likely to be most largely affected. Indeed it was not till after two years most careful thought, in committee and out of committee that the provisions of the bill were perfected in such a manner as to give liberty to all, and yet provide that the man who was willing to have his goods subject to inspection might adopt a certain brand which meant a certain grade. The following are the two sections which have been struck out by the Senate and which are the chief and most important ones in the bill:

6. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked "A No. 1 Canadian" unless such fruit consists of well grown specimens of one variety, of sound, of nearly uniform size, of good color for the variety, of normal shape and not less than ninety per cent. free from scab, worm holes, bruises and other defects, and properly packed.

7. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked the grade "No. 1 Canadian" unless such fruit consists of specimens of one variety, sound, of fairly uniform size and not less than eighty per cent. free from scab, worm holes, bruises and other defects, and properly packed.

Now by these sections a grower might contract with a buyer in England for a certain number of barrels of apples of grade No. 1 Canadian, a grade well defined,

making the packages subject to inspection, and the buyer could with confidence make such purchase without seeing the goods. This would develop a trade in apples along a new line, because any grower who could put up a few barrels of such defined grade would have a marketable commodity, which would command a certain price, and he would not be at the mercy of the apple buyer and speculator.

We do not think the venerable Senate of our Dominion has in this case shown that wisdom that should be betokened by their grey hairs. We close these remarks by adding a copy of the bill as finally amended and assented to by the Senate and House of Commons.

1. This Act may be cited as *The Fruit Marks Act*, 1901.

2. This Act shall come into operation on the first day of July, 1901.

3. In this Act, unless the context otherwise requires,—

(a.) The expression "closed package" means a box or barrel of which the contents cannot be seen or inspected when such package is closed;

(b.) The expression "fruit" shall not include wild fruit.

4. Every person who, by himself or through the agency of another person, packs fruit in a closed package, intended for sale, shall cause the package to be marked in a plain and indelible manner, before it is taken from the premises where it is packed,—

(a.) with the initials of the Christian names, and the full surname and address of the packer;

(b.) with the name of the variety or varieties; and

(c.) with a designation of the grade of the fruit.

5. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package and intended for sale unless such package is marked as required by the next preceding section.

8. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked any designation which represents such fruit as of finest, best or extra good quality, unless such fruit consist of well-grown specimens of one variety, sound, of nearly uniform size, of good colour for the variety, of normal shape and not less than ninety per cent. free from scab, worm holes, bruises and other defects, and properly packed.

9. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in any package in which the faced or shown surface gives a false representation of the contents of such package; and it shall be considered a false representation when more than fifteen per cent. of such fruit is substantially smaller in size than, or inferior in grade to, or different in variety from, the faced or shown surface of such package.

10. Every person who, by himself or through the agency of another person, violates any of the provisions of this Act shall, for each offence, upon summary conviction, be liable to a fine not exceeding one dollar and not less than twenty-five cents for each package which is packed, sold, offered, exposed or had in possession for sale contrary to the provisions of this Act, together with the costs of prosecution; and in default of payment of such fine and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding one month, unless such fine and the costs of enforcing it are sooner paid.

11. Whenever any fruit packed in a closed package is found to be falsely marked, any inspector charged with the enforcement of this Act may efface such false marks and mark the words "falsely marked" in a plain and indelible manner on such package.

12. Every person who wilfully alters, effaces or obliterates wholly or partially, or causes to be altered, effaced or obliterated, any inspector's marks on any package which has undergone inspection shall incur a penalty of forty dollars.

13. The person on whose behalf any fruit is packed, sold, offered or had in possession for sale, contrary to the provisions of the foregoing sections of this Act, shall be *prima facie* liable for the violation of this Act.

14. Any person charged with the enforcement of this Act may enter upon any premises to make any examination of any packages of fruit suspected of being falsely marked in violation of any of the provisions of this Act, whether such packages are on the premises of the owner, or on other premises, or in the possession of a railway or steamship com-

pany; and any person who obstructs or refuses to permit the making of any such examination shall, upon summary conviction, be liable to a penalty not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding six months, unless the said penalty and costs of enforcing it are sooner paid.

15. In any complaint, information or conviction under this Act, the matter complained of may be declared, and shall be held to have arisen, within the meaning of part LVIII of *The Criminal Code*, 1892, at the place where the fruit was packed, sold, offered, exposed or had in possession for sale.

16. No appeal shall lie from any conviction under this Act except to a superior, county, circuit or district court, or the court of the sessions of the peace having jurisdiction where the conviction was had; and such appeal shall be brought, notice of appeal in writing given, recognizance entered into, or deposit made within ten days after the date of conviction; and such trial shall be heard, tried, adjudicated upon and decided, without the intervention of a jury, at such time and place as the court or judge hearing the trial appoints, within thirty days from the date of conviction, unless the said court or judge extends the time for hearing and decision beyond such thirty days; and in all other respects not provided for in this Act the procedure under Part LVIII of *The Criminal Code*, 1892, shall, so far as applicable, apply.

17. Any pecuniary penalty imposed under this Act shall, when recovered, be payable one-half to the informant or complainant and the other half to His Majesty.

18. The Governor in Council may make such regulations as he considers necessary in order to secure the efficient enforcement and operation of this Act; and the regulations so made shall be in force from the date of their publication in *The Canada Gazette* or from such other date as is specified in the proclamation in that behalf.

ST. LAWRENCE EXPERIMENTAL FRUIT STATION, No. 10.

THE annual meeting of the Farmers' Institute of South Grenville was held at this place on June 12th, according to previous arrangements made by Mr. Creelman, Superintendent of Farmers' Institutes. The attendance was small, numbering about thirty five. The continued rains of May and early June delayed farmers with spring seeding and planting, and they are busy now with work that should have been done two or three weeks ago. However, the different sections of the riding

were well represented, some driving fifteen or sixteen miles to attend.

Prof. Macoun, Horticulturist Central Experimental Farm, Ottawa, assisted me in receiving visitors, and gave timely and valuable information during the day.

Shortly before noon the institute members held their annual meeting, elected officers and selected places for holding two regular and four supplementary meetings next winter.

After lunch, or basket picnic, a barrel of

Bordeaux mixture and Paris green was prepared and sprayed on full grown apple trees, care being taken to show both the right and wrong way to prepare the mixture and how to spray a large tree from four sides so as to cover the tree thoroughly and evenly with the finest spray possible. After the spraying was disposed of the soil was removed for a depth of 8 or 9 inches at a point directly in the centre of a square between four trees in well cultivated ground to show visitors the complete network of rootlets that occupy every inch of ground in an orchard of 15 years old or over, and illustrating the necessity of applying fertilizers to the whole surface and not around the stump of the tree.

Prof. Macoun paid particular attention to the matter of pruning, using typical specimens to illustrate the value of a close headed tree for this section of the country, explaining and showing the injury by sun-scald where the main branches or trunk is exposed to the hot and bright sun of spring and summer.

While walking through the experimental orchard we endeavored to point out the most promising and desirable varieties and also gave practical illustrations in budding, grafting, inarching, bridgework, etc.

Before closing the meeting the Professor gave an address, touching on fruit topics generally and gave descriptions of desirable varieties of apples for planting in this section.

I also gave them a short talk on cultivation, drainage, humus, mechanical condition of the soil, fertilizers, etc., and also touched upon the question of our most injurious insects, classifying them in groups to show the special benefits of early, medium and late sprayings.

The visitors seemed much interested and I am sure returned to their homes feeling that they had had a profitable and pleasant day.

HAROLD JONES.

Maitland, June 18th, 1901.

THE TRIALS OF A LANDSCAPE GARDENER.—In some respects, a good landscape gardener, landscape engineer or landscape architect, whatever he may be called, in connection with the artistic and practical development of landscape and grounds—occupies an unenviable position, and he may be likened to the pioneers in any great cause where advances are met with distrust and antagonism born of ignorance.

He has, first of all to show that his work, though closely associated with the pick and shovel, is not of it, and has artistic realizations as well as natural and purely mechanical ones. He is a true artist with visionary ideas, largely, which are tempered by the practical molding of nature and brought into living facts. An undeveloped piece of land is seen by him through evolutionary lenses

and he pictures the effects which might be produced by grading, planting, arranging paths and drives or altering the course of streams. His first picture is, perhaps, barely more than an outline such as a painter might sketch preparatory to adding the colors and touches which almost put life into a portrait; the development and details are largely the result of study and practical ability, always accompanied by the artistic touch and nature appreciation which belong to a good landscape gardener.

But a small percentage of the public appreciates the qualifications possessed by the landscape gardener; to the remainder he is simply an unusually good gardener, or one who is too much above menial work and desires to theorize. They do not believe he can be on the same plane as men of other

professions, and he has to force his way to the front by showing results,—and these do not come quickly, as a rule.

Like any other profession, there are “quacks,” to use a meaning popular term, and the true landscape artist must beat down the barrier of distrust which such men create continually. Their knowledge and practice are both limited and they will make any kind of bargain, whatever is best calculated to obtain a good sum for a little work—future results are of but little moment to these transient gardeners.

Where a man is recognized to be master of his profession, he should be hampered as little as possible, especially not before he has opportunity to present his ideas. Expense ought, so far as practicable, be a secondary consideration, just as it would be were a doctor of medicine called in for medical advice. The best should always be the highest aim in any walk of life,—and no one asks to receive value, even in advice merely, without offering full equivalent.—*Meehans' Monthly*.

OUR EXHIBITS AT THE PAN-AMERICAN.

DEAR SIR :

I am pleased to report to our many friends, through the columns of your valuable journal, that the exhibits in the various departments, in which our Province is interested, have up to the present time been very creditable, and have elicited many complimentary remarks from the large number of visitors that from day to day pass through the several sections.

The collection of minerals and ores from the Province, is unique in its character and makes a very comprehensive display of our mining wealth. This exhibit is in charge of Mr. Speller who is eminently well qualified to do justice to his native Province.

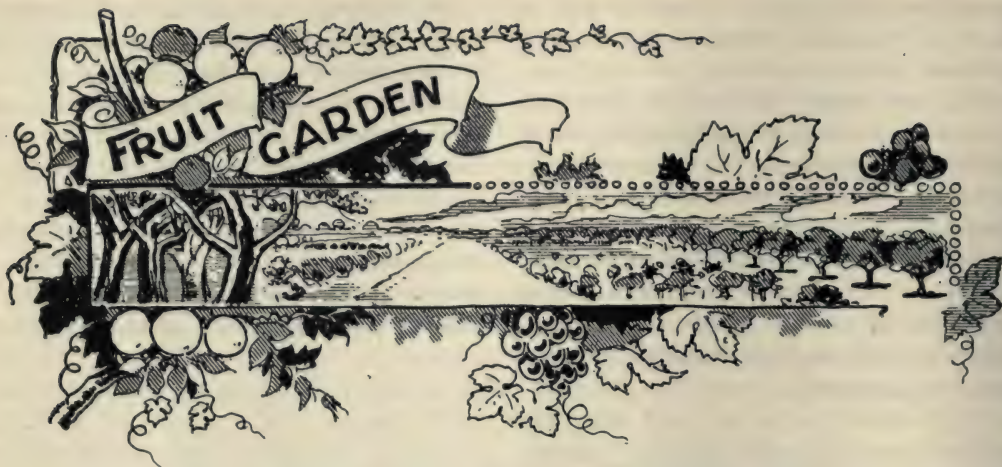
The fine collection of our native woods in the raw material and the manufactured condition, in the Forestry Building, under the superintendence of Mr. Swanson of Goderich, is calculated to give the average sightseer a very good idea of the vast extent and valuable nature of the products of our forests, and of the extensive industries connected

therewith which are as yet only in their infancy.

Coming to our own section, in which your readers may be more particularly interested, I am pleased to say that owing to the care and foresight exercised by you, as Secretary of the Fruit Growers' Association of Ontario, aided by the Department of Agriculture, we have been able up to the present time to put on the tables a most creditable exhibit of over thirty varieties of our standard apples, in very good condition indeed; these have been supplemented the past two weeks with a full supply of strawberries from a number of exhibitors whose names you will doubtless publish elsewhere. It is now desirable that our Horticultural Societies and our growers generally throughout the Province should follow up the present good impression that has been made, and, if this is done, I have no doubt that when the awards are finally made it will be a satisfaction to all concerned.

WM. H. BUNTING, *Supt.*





HINTS FOR FRUIT GROWERS—II.

SMALL VS. LARGE FRUIT FARMS.

FRUIT farming in Ontario is certainly a delightful occupation, and no wonder so many people of other callings are anxious to enter upon it. But the most pleasant line is not always the most profitable, as many persons have found to their cost.

The reason why many fail in this promising industry is because they attempt too much for their means, "they bite off more than they can chew," as the proverb has it. The ordinary grain farm comprises about 100 acres, and is counted rather small, if only fifty acres in extent; and a common, but mistaken, idea is that the fruit farm should be as large; and we find men without knowledge or experience buying farms of that size for fruit growing, and after years of wasted energy finding themselves still striving for a competence. They spread out their little money and little work so thin upon so large an acreage that it never can pay if they work till doomsday.

Fruit growing is *horticulture*, that is, *garden culture*, and not *agriculture*; it is the highest cultivation upon a small area of ground—it is intensive and not extensive.

Five acres will furnish work for one man and one horse, and ten acres for two, and pay far better than the work of the same men on one hundred acres.

Ten or fifteen acres makes a good fruit farm, and twenty-five quite a large fruit farm. The owner can then cultivate, prune, spray, gather the fruit and handle it as it should be done, and every year save some money for capital account.

THE SPECIAL FERTILIZER.

Of late years the fertilizer men have visited the fruit grower most persistently. We have nothing to say against fertilizers, and everything for them, because we must fertilize our orchards much more liberally if we are to receive good returns. But it has been urged that you should use a special fertilizer for grapes, another for berries, another for corn, etc., and that led Dr. Jordan, of Geneva, N. Y., to make the statement recently that "the day the special fertilizer is gone."

Greiner says in *Farm and Fireside*: "I have come to the conclusion long ago that the whole idea of making and using special fertilizers for special crops rests on an entirely wrong principle. The claims of

manufacturers that they can make a special manure for potatoes, another for cabbages, another for onions, and so on through the whole list, is absurd in the extreme. For some years I have been trying to convince manufacturers and the public at large of this fact. These claims of the fertilizer trade rest on the now generally exploded theory that we must replace the plant-foods in just the same proportion and quantities as they are removed by the crops. It is true that special fertilizers can, and frequently do, increase the crops to a material extent. But it is also true that we usually can obtain the same results by substituting one special fertilizer for another. We may raise just as good a crop of onions with the help of a potato fertilizer as with an onion fertilizer, and just as good a crop of cabbages by using one of these manures as by using a special cabbage manure. It is also true that, in a majority of cases, we can safely leave out one or even two of the chief elements of plant-food, using potash alone or phosphoric acid alone, or the two together, or nitrate alone or in combination with one of the minerals, as the case may be, and secure the same or even better results at a mere fraction of the cost of the special fertilizer. In fact, this is not so much a matter of the small difference in percentages or proportions as it is a matter of materials. And when it comes to this we may have at least some justification of talking about special manures. It is true that certain minerals seem to help certain crops. As I have stated on former occasions, nitrate of soda usually has a marked effect on cabbages, cauliflower, beets, spinach, sometimes on onions, etc. On the other hand, sulphate of ammonia has seemed to be markedly injurious to beets and some other crops. Muriate of potash has been found to be a safe form of potash to use on almost all crops, with the possible exception of beets. In this respect we must make our selection of materials according to the

crop we propose to plant, as also with proper consideration of the plant-foods which are already present in the soil in an available form. The fertilizer men cannot help us out with their advice. Observation and experiment must be our guides in this matter. And the same is true in regard to the quantities of these materials that we may use with profit.

THE CURRANT.

We cannot understand the low prices which have prevailed for such an excellent fruit as the currant, unless by the general depression of prices of all food products. If this is the explanation then, with the advance of prices for other fruits we may expect the same for the currant, which is so valuable for jams, pies, tarts and jellies; forming a most delightful and appetising article of diet. The Rural New Yorker gives some good points on pruning the currant, which we think worth giving our readers:

Our first trimming is done before planting; if our plants are one year old we simply cut back to a single stem, and allow only enough of this to remain for a start of three or four eyes, being careful to cut all other branches

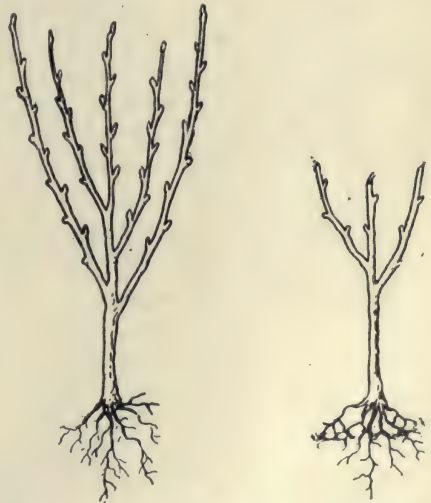


FIG. 2101. TWO-YEAR PLANT TRIMMED.



FIG. 2102. CURRANT BUSH THREE YEARS FROM PLANTING.

very close to the main stem, so as not to be troubled again by sprouting from the eyes that would otherwise be left. We endeavor to get a good stout plant as quickly as possible after planting. We allow from three to four good, strong stalks to grow in each hill; then carefully cut out all others as they appear. We do not favor the plan of keeping the fruiting hill to a single stem for several reasons. All currants are subject to the attack of borers after a few years from planting, which kill out the stalks they attack. When only one stalk is left to the hill, and the attack is made that destroys that hill, it creates a vacancy which in a few years often amounts to one-fourth to one-half of the plantation, while, if the hill contained three or four stalks, there would yet be left sufficient wood to produce a crop. A bush kept pruned to a single stem is also more liable in winter to be affected by the freezing and thawing of the ground than when the bush is formed by a number of stalks. So, too, the single-stem bush cannot so well support its load of fruit in time of high wind and rainstorms.

Our system of pruning is very simple; in fact, we do not believe in the wholesale butchery of a currant bush as advocated by so many. We want plenty of bearing wood, which is at its best form from three to four years old. We never shorten in the branches at all. We want them to grow as tall as they will. We find the foliage on the top branches a great protection to the fruit, as in the shade thus afforded it will hang, if necessary, several weeks after being fully ripened, which is sometimes of great importance when labor might be scarce, or is needed in gathering more perishable products, or in case the market becomes temporarily overloaded. Bushes closely cropped back at the ends, and exposing the fruit to the direct rays of the sun, are in danger of total loss of crop in case of wet weather followed directly by hot sun, which will scald the fruit as effectually as if hot water is poured upon it. Our trimming is simply a thinning process. We cut close to the ground all unnecessary young growth, retaining three or four main fruiting stems, and treat the remainder as so many weeds. After the third or fourth year from planting we allow several of the strongest young shoots to grow each year for the purpose of renewing the bush, and when these become old enough to bear we then cut out the weaker of the old stalks, and let the new ones take their place as rapidly as the old ones become partially exhausted and show signs of decay. Thus by properly fertilizing and caring for the soil we could run a plantation through a long period of years, and have wood of four to six year's growth, thus keeping the bush in prime condition all the while.

The more we grow fruit the plainer it becomes that there are a whole lot of pet hobbies, that have been handed down for years, that must go. We do not have time, and it is too expensive if we had it, to stand at a currant bush for half an hour each Spring

and clip a sprig here and there, and shorten back all growth to a certain fixed rule, and when we are through find we get no better fruit and no more of it than by a simple, common-sense method that requires so little labor, besides making our fruit liable to injury from sun and rain, and the bush itself becomes a prey to the borers through the process of pruning too closely. Understand, our idea is simply to thin out all unnecessary young growth, retaining three or four good, strong-bearing stalks, which are allowed to grow as tall as they will without any restraint whatever, and after they have given several good crops, and show signs of weakening, cut them out and have others coming on to fill their places without loss of time. Having done this much, let nature do the remainder and the results will be satisfactory. The pictures, Figs. 2101 and 2102, show our idea of it.

THINNING FRUIT.

This is one of the most important, and at the same time least practised of all the departments of fruit growing. So much of the vitality of the tree is consumed, indeed wasted, in maturing the seeds of the small worthless fruit, which afterwards goes to the cider mill, or should go there if not to the manure heap, that as a result all the crop on the tree is lessened in size. Experiments conducted at Maplehurst, and published in these pages, have already shown conclusively that the thinning of the peach crop actually increases the yield as well as improves the size. Now we have the results of Maynard's experience, at the Massa-

chusetts Agricultural College, showing similar results obtained with apples. The following paragraph is from Bulletin 73:

Most of the fruit in the above orchards was thinned when about one inch in diameter, checks being left wherever necessary. Careful records were kept of the cost of thinning, and the value of the fruit on the thinning and unthinned trees was estimated as follows:

Variety.	Expense of thinning ¢ c.	Yield bbls.	Value. ¢ c.	Gain per tree. ¢ c.
Red Astrachan, thinned	4 ½	5	3.00	
Red Astrachan, unthinned	1.20	5	5.05	2.05
Early Harvest, unthinned	1 ½	5	0	
Early Harvest, thinned . . . . .	.15	1 ½	.18	.98
Hurlbut, unthinned	5	5	3.00	
Hurlbut, thinned . . . . .	.45	5	3.55	.55
Baldwin, unthinned	3 ½	4	2.00	
Baldwin, thinned . . . . .	.60	4	2.90	.90
R. I. Greening, unthinned	2	2	1.50	
R. I. Greening, thinned . . . . .	.15	2 ½	2.10	.60

The entire crop of the orchards was sold about September 1st for 75c. per barrel, the purchaser bringing barrels to the orchards, and the apples were picked, sorted, and put into his barrels without facing. This included all fall and early winter apples, such as Porter, Hurlbut, Pewaukee, Fameuse, Mother, Pound Sweet, etc. The Baldwins and late keeping varieties were sold in the same way for \$1.00 per barrel.

The difference in length of time consumed in thinning the trees was due first to the varying size of the trees, and second to the necessity of employing help unaccustomed to this particular work. With a large orchard and skilled labor the cost per tree would be largely reduced.

MANY FARMERS in Ontario appear to be under the impression that recent regulations adopted by the Ontario Government in regard to the destruction of the Codling Moth on apple trees are compulsory upon all persons. These regulations have been made

in accordance with the provisions of the Noxious Insect Act passed in 1900. This is a local option Act, and comes into force only in those municipalities that adopt it by by-law.

NOTES FROM THE BIOLOGICAL DEPARTMENT OF THE ONTARIO AGRICULTURAL COLLEGE—V.

SOME RASPBERRY PESTS.

1. A very common insect in raspberry plots is the *Snowy Tree-Cricket* (*Ecanthus niveus*). Many samples of its work have been sent this month to this department, and there is no mistaking it when once observed, for the injury is quite characteristic. On old affected canes there are long, brown, open wounds, often two inches in length and opening into the pith. On last years canes, however, a row of punctures shows clearly



FIG. 2103. SNOWY TREE CRICKET.

where the injury has been done. If a slit be made lengthwise of the cane through these punctures, there will be seen a series of yellowish-white eggs inserted in the soft pith. Fig. 2104 shows how the eggs are arranged. The eggs are deposited late in the fall, and hatch out the following mid-summer. The young crickets feed largely on plant-lice, thus to some extent at least making amends for the evils they do when they become full grown. The adults are delicate, greenish-white creatures, and by the uninformed are seldom taken for cousins of the common, black crickets of the fields.



FIG. 2104.
EGGS OF SNOWY TREE CRICKET.

The remedy is simple. In the spring, cut out and burn all the punctured canes which are readily seen. By so doing, the eggs are destroyed, and all subsequent damage prevented.

2. Another insect that is giving considerable trouble this season is "*The Pale Brown Byturus*" (*Byturus unicolor*). At the time of writing (June 10th) the flower buds are suffering severely from the attacks of these small, hairy, yellowish-brown beetles. Later on, when the berries are ripening, the grubs of these small beetles will be found within the berries on untreated plants. When full grown the grubs descend and pupate in the ground where they remain all winter. About the end of May, the adults appear just in time to feed on the raspberry buds.

The remedy is a thorough spraying with paris green and lime solution just before the buds open.

3. In some localities, the *Raspberry-Cane Maggot*, a species of *Phorbia*, causes considerable damage to the young raspberry canes. The adult is a two-winged fly, and a close relative of the fly which produces the Cabbage-Root Maggot. The eggs are laid near the tips of the canes, and the young maggot bores its way downward in the pith and girdles the cane inside the bark. The result is that the part above the girdle soon wilts, and becomes dark blue in color. The maggot continues to bore downward to near the base, where it transforms into a pupa, and remains until the following spring, when it comes out as the adult fly.

The remedy in this case is also simple and consists in gathering the wilting tips and burning them. The grub is destroyed and no further damage can be done.

4. The fungus *the Orange Rust* (*Caeoma*

nitens) is already showing itself in some localities. The orange-red spots on the under surface of the leaves are clusters of spores which are readily blown to other leaves. Affected plants should be taken up and burned as soon as the orange spots appear. There is no use in attempting to save the plant by spraying, for the threads of the fungus are already present in the canes, and even in the roots. Spraying, however may prevent the spores from developing on exposed unaffected plants, and should be practised, for the *Anthracnose* will at the same time be kept in subjection.

source of infection for neighboring trees is removed. It is not clear how trees become inoculated, whether by insects, birds, wounds, or other sources, but it is stated by the most eminent German authority that the trunk cannot be infected after the age of twenty-five years. When the fungus has effected an entrance, the mycelium, or mat of threads, remains perennial in the bast, cambium and wood, gradually extending and absorbing the contents of the cells. Considerable turpentine is usually excreted from the cells attacked, and sometimes exudes from fissures in the bark.

AN ABNORMAL GROWTH ON THE SCOTCH PINE.
(*PINUS SYLVESTRIS*.)

A correspondent from Stratford sends me under the date of May 30th some terminal twigs of Scotch Pine with barrel-shaped swellings which were more than thrice the diameter of the twigs. (Fig. 2105).

He says, "Last year or perhaps the year before was the first time I noticed anything wrong with the tree, and last year I cut all the limbs off where there seemed to be dead leaves as the result of some disease or other, but this year I find another crop of which the sample I am sending is only part. This year the small branches near the top of the tree, which is 30 feet high, are the ones most affected. What had I better do? If a rigorous cutting off of the branches affected is likely to end in any good result, without in the meantime endangering the other trees, I think I can possibly save the tree."

These abnormal growths are produced by a fungus belonging to the Rust family, *Peridermium*. On some of the specimens, the cluster-cups, or aecidia, were visible, and the spores were abundant.

The only line of treatment suggested by the life-history of this fungus is the destruction of diseased trees, for they will die in a short time at any rate, while the direct

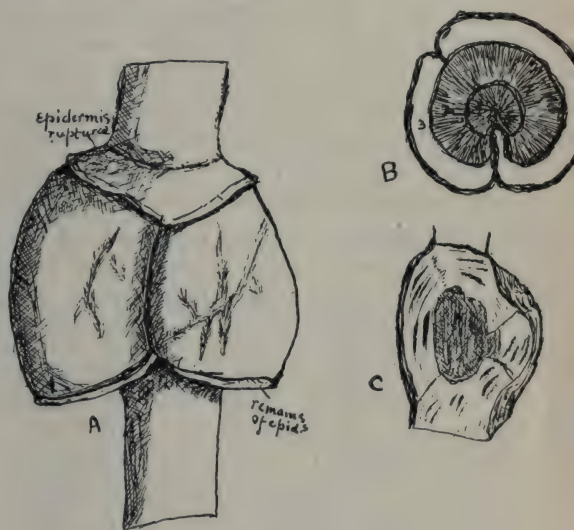


FIG. 2105.

Fig. A shows the appearance of one of these swellings, and the remains of the ruptured epidermis may be seen at the top and bottom. The new bark is fissured extensively. There is always one prominent vertical suture indicating the place where the disease originated, and where the cambium was first killed. Fig. B. shows clearly the three year's growth of the gall. The wood of the first two years has become discolored, and is beginning to decay. C. is a vertical section through the gall in the line of the vertical suture.

QUARANTINE OF AMERICAN FRUITS IN GERMANY.

Dr. J. B. Smith, Entomologist of the New Jersey Experiment Station, in his annual report for 1900 contributes an interesting note regarding the method of examining fruit shipped to Germany from America, i. e., United States and Canada :

"All the fruit passing through Hamburg is unloaded at the "Fruchtschuppen", or fruit dock, an immense covered space, which can be heated in winter. Here all consignments are separated, reported to the director of the station, and he selects a sample for inspection. The bill of notice must give the number of barrels or crates from each general locality, and the number of barrels each variety. A fee is exacted for each inspection. At least one barrel of each variety is taken out from each general locality. Should the consignment contain one barrel of Greenings from New York and one from Virginia, both would be examined; but if there were ten barrels of Greenings from Virginia probably one only, certainly not more than two, would be selected. Each barrel is tagged for identification and removed to a locked enclosure at the end of the "Schuppen." About half the contents of each barrel are dumped into an oblong basket, tagged to agree with the barrel, and transferred on a car to an elevator which carries the basket to the second floor of the station which is fitted with examining tables and study tables for the technical experts. The basket of apples is turned out upon a table where three or four examiners handle and look closely at every fruit. These examiners are instructed to pass only perfectly clean fruit, placing on one side every one that has scale of any kind or any apparent disease or abnormality. Should all the fruit prove clean on first inspection, the barrel is refilled, given a tag which certifies it has been examined, found clean and releasing the lot of which it is a sample. The consignee is then

at liberty to remove the shipment; or he may leave it a specified time and sell at auction or otherwise on the dock.

If on the first inspection say a dozen apples are sorted out as affected in some way, these are referred to one of the experts who determines the character of the infestation. If anything other than the pernicious scale, the occurrence is simply recorded for use in making up statistics of work done. Should the infestation prove San Jose Scale, all the fruit of which that barrel was a sample would be at once excluded. A printed notice is sent to the consignee who is accorded a limited time to ship the fruit out of the country. It cannot pass the gates of the "Schuppen" cityward without the official stamp."

"It may be interesting also to note that in the term "American" the Germans include Canadian as well as United States products, the shipments of 1898-99 dividing as follows according to origin :

	Barrels	Crates
Canada and British America	14,484	133
Eastern United States.....	11,875	
Western States including		
California.....	7	691
Without specific locality....	2,865	80

It appears, therefore, that Canada is distinctly in advance in her efforts to find foreign markets, while California growers made a very good showing. Of the fruit from the Eastern United States the majority in which a definite locality was mentioned came from Virginia, New York seeming to come next.

It is of interest to know that in 1898-99, 582 crates and 26 barrels of apples, and 1 crate of pears were found infested with San Jose Scale. Of these all the crates and 7 of the barrels came from California and Oregon. One barrel of infested apples came from Virginia and 2 from New York. Sixteen barrels and five crates were of undetermined locality, the chances being that at least 14

of the barrels were from the Pacific Coast.

Of the apples imported in 1897-99, two-thirds were Ben Davis, but in 1898-1899 nearly 15,000 were Baldwins and only 2,204 were Ben Davis, Northern Spy exceeding it in 2,266 barrels.

Reports for 1899-1900 are not available at the time of writing."

From the foregoing, it is clear that if Canada wishes to hold her own in the German market, she must send fruit free from the San Jose Scale. This side of the Scale question, I venture to state, has not been studied sufficiently by our fruit growers.

W. LOCHHEAD.

O. A. C., Guelph.

UNIFORM PACKAGES.

OUR readers will remember that we gave an account on page 99 of a committee meeting at St. Catharines at which the subject of uniform packages was carefully discussed by some of our most prominent fruit packers and shippers, and finally an agreement was reached, favoring the use of certain uniform sizes. Mr. E. D. Smith, M.P. for Wentworth, was at the meeting, and agreed to present the wishes of the growers to the House of Commons at Ottawa.

We find that these regulations as agreed upon by us, have been adopted by the House of Commons in bill No. 117, entitled 'An Act respecting the packing and sale of certain special commodities,' of which Section 5 reads as follows:—

5. Every box of berries or currants offered for sale, and every berry box manufactured and offered for sale in Canada shall be plainly marked on the side of the box in black letters at least half an inch square, with the word "short," unless it contains when level-full as nearly exactly as practicable—

(a) At least four-fifths of a quart, or

(b) Two-fifths of a quart.

2. Every basket of fruit offered for sale in Canada, unless stamped on the side plainly in black letters at least three-quarters of an inch deep and wide with the word "quart" in full, preceded with the minimum number of quarts, omitting fractions, which the basket will hold when level-full, shall contain, when level-full, one or other of the following quantities:—

(a) Fifteen quarts or more;

(b) Eleven quarts, and be five and three-quarters inches deep perpendicularly, inside measurement, as nearly exactly as practicable;

(c) Six and two-thirds quarts, and be four and

five-eighths inches deep perpendicularly, inside measurement, as nearly exactly as practicable; or

(d) Two and two-fifths quarts, as nearly exactly as practicable.

3. Every person who neglects to comply with any provision of this section, and any person who sells or offers for sale any fruit or berry boxes in contravention of this section, shall be liable, on summary conviction, to a fine of not less than twenty-five cents for each basket or box so sold or offered for sale.

4. This section shall come into effect on the first day of February, one thousand nine hundred and two.

These sizes will seem arbitrary to a reader at first sight, until he perceives that they are based on the sizes of the fruits which the baskets are intended to contain.

The box of berries is the ordinary so-called quart or pint berry basket, which has been so long in use in Ontario—being of the dimension of the old Winchester quart or pint.

The eleven quart basket is the ordinary handled peach basket, commonly known as the twelve-quart basket, probably because it held about twelve berry boxes full of fruit, and the $6\frac{2}{3}$ quart is of a depth to take two layers of fine peaches, or about nine pounds of grapes, and thus it will take the place both of the ten-pound grape basket and of the 6-quart peach basket. It will indeed prove to be the most popular basket in use for cherries, plums, peaches and all choice fruits.

Certainly it is high time that some regulation was made, for, as it is, basket factories

are at a loss to know what to manufacture, and growers are constantly tempted to use a basket slightly short of that used by others, hoping thereby to get the same price for a

package containing less fruit. No doubt the venerable Senate will exercise their wisdom (?) over this bill also, and we await with patience the result.

PACKING AND CARRYING FRUIT.

PROF. ROBERTSON has given evidence before the Agricultural Committee of the House of Commons as to the injury done to the Canadian apple trade by dishonest and improper packing. He spoke of the need for properly-ventilated stowage on steamers, and read a number of reports from Mr. Grindly, the department's agent in Liverpool, showing that where apples were carried in heated holds they arrived in bad condition. The shipments to Glasgow arrived in the best condition. This year the steamship companies were showing a desire to co-operate with the Government in securing proper carriage of apples.

This question of having our apples honestly packed and all our fruit landed in Great Britain in good condition is most important. Legislation in regard to dishonest packing cannot come too soon, while every means in the Government's power should be utilized to induce, and, if need be, compel steamship companies to provide properly ventilated and isolated chambers for the carriage of fruit. But we are making progress along these lines, and a few years will doubtless witness a large improvement in the direction of better shipping and carrying facilities for all our perishable food products. In this connection the following comments on our fruit trade with Great Britain, taken from a recent issue of *British Refrigeration and Allied Interests*, will be found interesting:

"The recent shipment of Canadian fruit to this country, to which reference has already been made on several occasions in the

columns of this journal, and as regards the quality, of which we give in another part of this issue an interesting report by a well-known expert, has sufficiently amply demonstrated the fact that the initial difficulties to the enterprise have been satisfactorily overcome, and that the time has now arrived when Canadian fruit, not only of the hardier class, but also that of the most delicate description, will be able to compete on exceedingly favorable terms in the markets of this country. Some years back, when shipments of Canadian fruit were first made, the result was disastrous, and the project was thus nearly killed in its earliest infancy. Nor, indeed, was this failure much to be wondered at when it is to be considered that fruit, beef, butter, etc., were all stored on board the steamer in the same cold chamber, although the temperature suitable for their preservation differ very considerably. For instance for fruit we do not want anything lower than 36 degrees Fahr., nor appreciably higher than 40 degrees Fahr., whilst for butter the temperature might with advantage be as low as 22 degrees Fahr., and for beef one of 28 degrees Fahr. would be the best. Under such circumstances it is not very surprising that as the temperature of the cold store was kept suitable for the latter goods, the fruit suffered very much damage, and when exposed to the warm air on its arrival in this country, the tissues burst, and it perished within twenty-four hours.—*Farming World*.

ORCHARDING—I.

MANAGEMENT OF THE ORCHARD.

THE fertility of the land is its productive power; tillage is one of the means by which this productive power may be increased. Moisture is an important factor in fruit-growing. The importance of water to the apple and peach tree was very clearly shown by the experience of last summer. The rainfall was much below the normal amount for the months of July, August and September. What was the result in untilled orchards as compared with that in well tilled fruit lands? As a rule the apples in sod orchards were undersized; they lacked color and were often deficient in natural juiciness. This fruit presented a marked contrast to that grown in orchards that had been tilled carefully throughout the season.

The fruit-growers' program of cultivation.—Of what should this consist? In the spring his object is to get his soil laboratory in working condition as early as possible. To do this he plows the orchard land. The plowing of the ground does several things. It lowers the water-table; it increases the water reservoir; it allows the air to permeate; it encourages the nutrifying processes. While as a rule the plow should be the first implement introduced in the orchard in the spring, there are conditions which prohibit its use. Obviously it is not the ideal implement with which to carry on summer cultivation. In spring it not only releases and tends to remove soil water, but it adds to the soil's capacity for holding water. In later summer the energies of the fruit-grower should be directed to saving for the use of the tree as much moisture as well drained land will naturally hold. The disc harrow is probably the most effective implement to follow the plow. This pul-

verizes the clods and tough lumps of soil and leaves the land in good condition for the smoothing harrow which should follow the disc.

The primary objects of tillage are to save moisture and release plant-food rather than to kill weeds. A farmer may ask, "Should I use the cultivator just often enough to keep down weeds or ought I to cultivate at least once a week?" Weed growth may not be looked upon as a reliable guide to the orchardist in the matter of cultivating. The character of the soil and the amount of rainfall together form a much safer standard to guide our practice. If a heavy rainstorm should follow within twenty-four hours of cultivating the orchard, it might be necessary to repeat the work within the next forty-eight hours. The surface mulch must be maintained.

There is a distinct difference between the status of an orchard when viewed as a farm crop, and a field of wheat or corn.—The apple tree is planted in a certain place; it is fixed and immovable, and is dependent for sustenance on the food within reach of its roots. The situation may remain unchanged year after year. The tree may continue to starve or to revel in high living. The drain on the soil's store-house of food increases year after year and is emphatically augmented when bearing age is reached. These conditions make the tree at once a hard boarder and a helpless boarder. The wheat plant has only a year of existence. If the conditions are favorable it produces flowers and seed, and the stem with the grain is gathered; but the root is left in the ground to compensate in a measure for the plant-food used in perfecting the kernel. Farmers manure wheat ground every year. Should

not fruit trees receive treatment equally generous? Do not the trees make an annual draft on the plant-food of the soil?

Fruit trees are in themselves a sufficient crop for the ground on which they stand.—

This is especially true after the tree comes into bearing. We may deviate somewhat from the rule in the case of apple trees which are planted thirty-five or forty feet apart. In cases of this kind other crops may be grown in the interspaces. What type of crop to grow is an important question. Shall we grow something cultivable, or a cereal, such as wheat or oats, that occupies the entire surface of the ground? It may be said that the soil moisture is saved somewhat in proportion to the area of surface cultivated. In the case of the wheat crop, not only does the plant compete with the tree for moisture and available plant-food, but it allows of greater evaporation from the soil than occurs in the case of a plant grown in rows—like the turnip, sugar beet or potato. Then, too, the wheat plant requires its moisture in the early part of the season; so does the apple. At this time the tree is making wood and the wheat plant is making kernel. We should avoid, as far as possible, this injurious competition.

Orchards require clean cultivation during the tree's growing season, but the soil also needs humus to preserve a good physical condition and to promote chemical activity. The necessity of maintaining the supply of humus has particular force for the fruit-grower. When an orchard is constantly under clean tillage the store of humus generally diminishes. The truth of this statement finds ready corroboration in the story of worn out nursery lands, where the drain upon humus has been excessive. With the nurseryman, cultivation is essential to the production of salable trees. The whole strength of the soil is reserved for the tree. No weed growth is allowed to compete with the tree during its period of growth, and the

ground is often kept clean throughout the entire season as a safeguard against mice and rabbits. When the tree is dug it is removed literally root and branch. This is worse than the case against the wheat or corn plant, where the roots are left in the soil and add to the store of humus. In order to preserve the balance, the nurseryman is obliged to do one of two things—he must practice a rotation which will keep up this supply, or he is obliged to constantly seek new land. It is due to this fact that large quantities of fruit stocks and nursery trees are grown in the new lands of the western plain's country.

A cover-crop is a crop sown in the orchard at the close of the tillage season, to produce a supply of humus, to promote nitrification, to prevent the leaching and eroding effects of fall and spring rains, and to protect the roots of the trees from excessive cold. The cover-crop is one of the most important factors in successful orcharding at the present time. Orchard cultivation has been urged for a number of years; it has been practiced in many localities, and the results obtained have encouraged orchardists to continue the practice; but clean cultivation has its limitations and must not be carried too far. It should apply only to the growing season of the tree. The ground at that time should be in perfect condition of tilth. The dust blanket should be so thoroughly maintained that the film moisture of the soil is completely preserved. In this condition the soil furnishes a favorable seed bed, and even small seeds may be expected to germinate successfully.

The cover-crop is sown in mid-summer and is expected to produce a mat of surface vegetation that will cover the ground thickly before autumn comes. One of the difficulties in growing cover-crops is to obtain a good "catch." If the orchard has not been thoroughly cultivated a good catch is hard to secure. On the other hand, if tillage has

been thorough there is usually no trouble in obtaining a good stand. As a rule the smaller the seed, the more uncertain the catch. Why? Small seeds should not be covered deeply. They are therefore more at the mercy of external conditions than are large seeds, which in themselves have a considerable store of nourishment, and for that reason may be planted deeper. Clover is often sown on the surface, while peas and beans should always be drilled in. Rolling the ground during dry weather, after sowing the seed, is very important. In planting the nursery tree we have said that the earth should be packed firmly against the roots that they can readily absorb moisture. So it is with the seed awaiting germination; it germinates promptly when it is able to absorb soil moisture and is under the influence of a sufficient degree of warmth. For this reason clover seed rolled in, will germinate quicker on dryish soil than unrolled seed. The character of the soil must be taken into consideration in connection with the treatment it should receive.

Cover-crop plants are of two types: leguminous and non-leguminous. The leguminous are usually the more valuable.—Among desirable leguminous plants for the orchard are the clovers, peas, beans and vetches. Among the non-leguminous types are buckwheat, rye and rape. The legumes are nitrogen collectors. For this reason they are much more valuable than the non-leguminous class. As a rule, too, roots of clover penetrate very deeply. In this respect they are of particular value in improving the physical qualities of the soil.

To obtain the full benefit of the cover-crop it should be plowed under early in the spring. There is a temptation to give the cover-crop a chance to make growth in spring before plowing it under. This is bad practice except when the land has too much moisture; in these circumstances it may be of some service in using surplus water. If

it is allowed to grow strong and rank before turning under, the fibre becomes tough and does not readily decay. On the other hand, if turned under early in spring, as soon as the ground can be worked, decay sets in promptly, and the humus thus produced becomes a prompt worker in carrying out its mission in the soil. Think of the mission of green manure.

Manures for orchard crops are mainly of two kinds: those from domestic sources and those produced by the manufacturer. The latter are commonly called "commercial fertilizers."—Barnyard manure influences the soil in two ways: (1) By means of the plant-food furnished; and (2) by the addition of vegetable fibre, which improves the physical condition. If the land is sticky clay it is made more porous and less compact. The insoluble particles are separated and are thus more readily acted upon by dissolving and nitrifying agents. Sandy land is improved also by having the interspaces filled with vegetable matter, which greatly increases its absorptive capacity. A leading difference between the commercial fertilizer and the barnyard manure lies in this secondary function possessed by the latter, viz.: that of improving the physical character of the soil. The commercial fertilizer cannot be counted on to improve greatly the physical character of the soil; its chief function is to furnish plant-food. The indirect or secondary effects of commercial fertilizers are slight. The commercial fertilizer adds to the soil the essential food constituents, while the barnyard manure does this and in addition helps to make the constituents, already in soil, serve as food to the plant. These considerations show at once the value of barnyard manure for hard and dry soils. It is a general fertilizer; it furnishes a certain amount of the three principal elements of plant-food: nitrogen, phosphoric acid and potash. Commercially fertilizers are often special manures. The term "phosphates,"

which applies only to fertilizers whose chief constituent of fertility is phosphoric acid, is often erroneously taken by farmers to mean a complete manure.

The supply of barnyard manure is limited ; it cannot always be obtained. What shall we substitute ?—The orchardist may not be able to secure barnyard manure, but he can always make use of "green manures." By this term "is meant a crop which is primarily grown for the purpose of improving the soil and not for the harvested product."

These green manures are of two classes : nitrogen collectors and nitrogen consumers.—The members of the first class are able to gather nitrogen from the air in addition to that which they take from the soil. Those of the second class can only obtain it from the soil. When we grow the nitrogen-collector and plow it under, we save the nitrogen taken from the air as well as that from the soil. When we grow the nitrogen-consumer and plow it under, we have only given back to the soil in a slightly changed form the nitrogen originally taken from it.

Commercial fertilizers are of two classes : standard high-grade fertilizers, and those which are variable in composition and availability, called low-grade—Among commercial fertilizers there are certain materials whose composition and availability are fairly constant. Nitrate of soda, sulphate of ammonia and dried blood are called high-grade standards because their composition may be depended upon to vary but little. These are nitrogenous fertilizers, and the nitrogen is usually in a form of ammonia which is immediately available.

In the phosphates the phosphoric acid is not directly available. Because of this fact the standard supplies of phosphoric acid are derived from these materials after they are manufactured into superphosphates. There are many kinds of these superphosphates. They may be considered standards, as they

always contain a high percentage of available phosphoric acid. South Carolina and Tennessee rock phosphates are the standard basic materials from which superphosphates are manufactured.

There are high-grade potash fertilizers. Among these are the German potash salts which may be depended upon to give a fairly constant percentage of potash. The above and other nitrogenous, phosphatic and potassic compounds are worked over by the manufacturer of commercial fertilizers, and form what we commonly know as commercial fertilizers.

The different food elements should not be expected to perform certain specific things in the building up of the plant.—The question is often asked, "Can I, by the use of certain fertilizers, accomplish certain definite results." It is unwise to give any such assurance. It may be safe to generalize somewhat as follows :

Nitrogen.—If nitrogen is used in excess, it is more than probable that a luxuriant growth will result. If the orchard, therefore, is making plenty of wood, and is carrying healthy foliage, this would suggest that nitrogen, as a special fertilizer, was not needed. If on the other hand the growth is meagre and stunted, an application of some material containing nitrogen in excess might be expected to give good results. The effect of fertilizers is not always seen on trees the first or even the second year of their application. The results may follow two or three years later. This will depend of course, in a measure, on the nature of the fertilizer used. If, like nitrate of soda, it is immediately available, then results may be looked for sooner than if it is the nature of barnyard manure, which can only be used by the plant after thorough decomposition has taken place.

Potash.—This fertilizing constituent is always looked upon by fruit growers as being very important. It is well to remember that

tillage increases the amount of available potash in the soil. The principal sources of potash are the German potash salts, chief among which are kainit, muriate of potash and sulphate of potash. An available form of potash is that found in unleached hard wood ashes. These should contain from four to eight per cent. of the potash, the amount depending upon the wood from which the ashes were derived and the way in which they were kept.

Phosphoric acid.—Plain superphosphate contains about sixteen per cent. of phosphoric acid. This is usually applied at the rate of from two to three hundred pounds per acre. There are several brands of bone fertilizers. These are sold as "treated"

and "untreated." The untreated varieties give up phosphoric acid very slowly. The treated on the other hand are more or less immediately available.

The gist of the whole matter of fertilizing orchards consistently and sufficiently may be expressed as follows: Luxuriant growth probably means abundant nitrogen. Stunted growth calls for nitrogen, or water, or both. Fruit deficient in color and flavor suggests the freer use of phosphoric acid and potash; but without humus in the soil, the use of commercial fertilizers may be an extravagant if not useless practice.

JOHN CRAIG,
In Cornell Reading Course.

NEW CHERRY WAYS.

CANNED cherries: For canning, sour cherries are best. Select fine, ripe fruit, stem, wash and stone. To every 1 quart of fruit allow $\frac{3}{4}$ lb. white sugar and $\frac{1}{2}$ quart water. Put the fruit and sugar into the preserving kettle in layers and let stand one hour. While waiting, simmer in the water to be added 1 tablespoon of the stones for every quart of cherries, strain, then add sufficient boiling water to make up what was lost in simmering. Add this to the fruit, bring quickly to a boil, let boil five minutes and seal boiling hot.

Cherry Cheese: Stone red cherries and chop them very fine. To every 1 lb. fruit add $\frac{1}{2}$ lb. white sugar, and simmer very slowly until a smooth stiff mass. Pour into glasses and when cool seal like jelly. This is delicious served with whipped cream and sponge cake, or used as a filling for layer cake or sweet sandwiches.

Cherry Pie: Line a pie tin with good puff paste, and sprinkle over it 1 tablespoon flour and $\frac{2}{3}$ cup sugar, over this place 1 pint stoned cherries, cover with an upper crust and bake in a quick oven to a light brown.

Cherry Syrup: Select large, ripe cherries and extract the juice as for jelly. To each quart juice allow 3 lbs granulated sugar, put the sugar with 1 pint boiling water into a saucepan and stir until it is dissolved, then add the cherry juice and let come to a boil. Skim well, boil one minute, bottle and seal. This makes a delicious pudding sauce, or is excellent for serving with hot cakes.

Spiced Cherries: To 7 lbs. cherries allow 1 quart vinegar and 4 lbs sugar. Mix $\frac{1}{2}$ oz. ginger root, 1 teaspoon ground cloves, 2 teaspoons allspice, 2 teaspoons cinnamon and $\frac{1}{2}$ teaspoon ground mace, tie in a muslin bag and put it in a preserving kettle with the sugar and vinegar. When it boils add the cherries, bring to the boiling point again and pour carefully into a jar. The next morning drain the vinegar from the fruit, heat it again and pour it over the cherries. Do this three or four days in succession, the last time boiling the juice down to just enough to cover the fruit. Add the fruit, let come to a boil and can. — *American Agriculturist.*

BEEES IN THE ORCHARD.

THE relationship of bees to fruit culture is a threadbare and dangerous subject to discuss at a farmers' institute because the slightest variation from the whole truth is liable to make some sturdy fruitgrower wax warm and ask some questions that would spoil the best argument in the world.

Being naturally truthful and interested in both fruit and bees, I should come as near seeing things as they are and telling it straight as anybody.

I shall take the ground to commence with, that bees are no benefit whatever to any kind of fruit after the blossoms have fallen from the tree and if any relationship exists between bees and ripe fruit, it is the relation of the small boy to a piece of bread and butter. I do not believe that bees are any benefit either grapes or figs at any time. The blossom of the grapes seems to belong to that class of inconspicuous flowers sometimes called wind-lovers. The pollen in these flowers is a dry powder which is carried by the wind from the anthers of one flower to the stigma of another. The fig depends upon an insect to bring its lover, but that insect is not the honey bee, its name is *blastophaga grossorum*.

Many animals, birds and insects have found out that figs and grapes are good to eat, and man has to fight for his share, the birds and yellowjackets bite holes in the fruit, and when they go away the bee takes possession and cleans up the balance.

Bees will not eat fruit if there are plenty of flowers at the time the fruit ripens, but unfortunately there are not many flowers in California at this time. Fruits that ripen in May, June and July usually escape injury from bees, because the bees are busy at that time storing honey from the sage and other wild flowers. For this reason the apricot is

not troubled by bees except in dry years when there are no wild flowers.

The pear, peach, nectarine, prune, plum, and apricot depend on bees and other insects to fertilize their blossoms, and when only a few trees are planted in a place the other insects may be sufficient, but when man plants large numbers of these trees in a mass it becomes necessary to also mass the fertilizing agents, and bees are the only insects that can be practically used for this purpose.

I have known several cases where large orchards of these fruits were a failure until some wise friend suggested bees as the remedy. The bees were tried and immediately the orchards became paying properties.

I have repeatedly covered branches of these trees with house lining just before the tree began to bloom, so no bees could get to the blossoms, and left the cover on until the blossoms had fallen. The result was also the same—a total failure of the crop on the branches so covered.

If I owned a large orchard of any one of these fruits and my neighbors did not keep bees I would buy at least one colony of bees for each four acres of fruit and keep them in or near the orchard while the trees were in bloom, and if they gave any trouble when the fruit was ripe would move them away, but the chances are that the damage to ripe or drying fruit would not pay for the trouble of moving the bees.

Oranges, lemons, olives, apples, quinces and nut trees receive great benefit and no injury from the presence of bees, and large orchards of any of these fruits should have a corresponding number of bees near them. Olives and almonds do better where varieties are mixed to secure cross-fertilization.

The pollen in nearly all fruit blossoms and other flowers that secrete honey is heavy

and adhesive and cannot be carried by the wind from one flower to another, and these plants would cease to exist if they had not the power to bribe the insect world, with a little drop of honey, to carry this fertilizing pollen from the anthers of one flower to the stigma of another.

In nearly all fruit blossoms the anthers and stigmas do not mature at the same time

in one blossom ; this is a provision of nature to secure cross-fertilization and improvement of the species.

This great law of nature, that all vegetable and animal life must depend on fusion, is the great central idea in the plan of creation. It is the doorway to all progress and improvement. It is evolution.—*California Cultivator*.

THE LADY WARWICK AGRICULTURAL ASSOCIATION FOR WOMEN.

MISS Edith Bradley, Secretary for the above Association, Reading, England, sends us copies of the Quarterly Leaflet, published by Lady Warwick in the interests of her agricultural scheme for women, and in her accompanying letter makes the following explanations :

"I am sending you herewith full details regarding the Lady Warwick Agricultural Association for Women, and the last annual report will lay before you the various branches of work which we take up.

"The Association has been formed to bind in one strong organization those in all parts of the world who are interested in women's work in the lighter branches of Agriculture, such as horticulture, dairy-work, poultry and bee-keeping. We admit Societies as associates, that is, the secretary pays on behalf of the Society 5s. per annum, and this fee covers : (1) One year's subscription to the Woman's Agricultural Times, into which we propose to introduce the following changes, in volume 3, which commences with the July number :

- (1) Articles by experts on horticulture, dairy-work, poultry and bee-keeping.
- (2) Articles on the work already accomplished by women in the lighter branches of agriculture.
- (3) Lists of all the agricultural and horticultural shows to be held throughout the country during the current year.

"(2) Free use of the Information Bureau, and in connection with this we shall be very glad to receive from the secretaries of Societies in affiliation with us, any information regarding the possibilities of women's work in the lighter branches of Agriculture in Canada, or elsewhere. (3) Free use of the Registry, through which partners, trained workers, posts, etc., may be obtained, and through which we would be glad to put you into communication with any woman who intended going out to Canada, and who are trained in the work.

"We should be very glad indeed to place at your disposal any of the resources of our Association. It is somewhat difficult of course at this distance to lay down rules for the formation of a confederation of the Horticultural Societies in Ontario, but you may rest assured of our interest and hearty co-operation in any work in which we may be of the slightest assistance to you.

"If you will communicate with me on any definite points, I shall be only too pleased to give the matter my consideration and attention."

Perhaps it would be to the interest of our Horticultural Societies to become associates of the Association, and receive all publication, and they would then be in touch with the work, and it might result in mutual advantage.



GREENHOUSE, WINDOW AND GARDEN—VIII.

THE GREENHOUSE.—All repairs to benches, etc., and any painting required in the greenhouse or conservatory should be attended to now that there are few plants indoors.

If outside shading is used on the glass it will probably require renewing.

All chimney or flues connected with the greenhouse should be cleaned out. Hot water boilers and pipes should be emptied and refilled with clean water. Put a few pounds of common soda into the supply tank or expansion pipes, it will help to prevent the boiler from rusting. Oil all the hinges of the doors on boiler or furnace, and leave them open, it may save you both time and money when you start them in the fall. Summer idleness is more injurious to boilers oftentimes than the winter's work, if proper precautions are not taken now to keep them in good order during the summer.

Cineraria seed should be sown now to ensure flowering results in January or February. Sow the seed in pots or shallow boxes or seed pans, put the latter in a cold frame or beneath a hand light out of doors. Place a sash over them and keep the glass well shaded, until the plants are nicely established. Give plenty of air by tilting the

sash. Sprinkle tobacco dust and wood ashes around outside the seed pots or boxes to prevent thrip, aphid, and slugs or snails from attacking them. Slugs are very partial to seedling cinerarias, and will soon clean out a pan of seedlings unless checked. A cool north aspect, is the best for raising seedling cinerarias. A few pots of cinerarias when in flower are a great addition to a bench of plants in the winter, after the chrysanthemums are over.

If roses are grown on benches it is time to plant them. Give the plants plenty of air and water, especially the latter when once they are well started into growth. Syringe the plants daily and keep all buds picked off as soon as they appear, allowing none to even approach near to the flowering stage. Three-fourths good clay loam sod well rotted, one fourth of well rotted cow or stable manure, and a little bone meal, will make a good compost for either bench or pot roses.

Use plenty of water on the floors of the greenhouse especially if occupied with ferns and similar tender exotic plants.

WINDOW PLANTS.—Plants in window boxes must have plenty of water at the roots. It may be necessary to go over them three or



FIG. 2106. CINERARIAS.

four times with the watering can or hose pipe, because one watering will scarcely more than moisten the top of the soil when the boxes become full of roots, as they do usually at this late summer season. When growing plants require water, give them sufficient to thoroughly moisten the roots, so that each root may be able to do its share in supporting the plant. A little weak liquid manure once a week will help plants in hanging baskets or window boxes to continue flowering and growing until late in the season. Unless this is done the soil becomes poor from constant waterings, and the plants begin to look poor and shabby.

In giving fertilizers to plants it is always wise to start by giving them a small quantity until the plants show signs of increased growth and vitality, taking care to diminish the quantity if the plants begin to show too much growth. A sappy, abnormal growth in plants is not conducive to either good returns of blossom, or to the health of the plants for any length of time.

Plants of old geraniums in pots that are wanted for winter blooming and that have been resting since spring, can be cut well

back if the growth of the plant requires it. As soon as the young growth begins to appear, shake nearly all the earth from the roots, and re-pot into a size or perhaps two sizes smaller pot. Three parts of enriched sandy loam potting soil, and one part of sharp sand, will be a good compost to start the plants in, using an inch of drainage in the pots. Young plants of geraniums if grown as recommended in a recent number of this journal will however give much better flowering results than old plants, unless the latter are very nice plants

and in extra good shape for growing on again.

A few pots of freesias may be started toward the end of the month for early flowering. Stand the pots outside in a cool place. Do not over water them until they show signs of growth. Five or six bulbs will fill a four or five inch pot nicely. The bulbs for later flowering must be kept dry until potted later on. Freesias are one of the most satisfactory bulbs for winter flowering in the window that we have, as well as in the greenhouse.

Amaryllis bulbs, plants of clivias, and cactus require very little water now.

Calla lilies that have been resting can be repotted if necessary. Oftentimes a top-dressing of well enriched potting soil will be sufficient for these plants without repotting them. To top-dress plants—as it is termed, get a sharp pointed stick and take out some of the top soil around the plant without disturbing the roots very much, then fill in with the fresh rich soil. This is often better than repotting callas, as overpotting them produces an abundance of growth, and few and late blooms. The drainage of the plant

must be perfect or the plants must be repotted instead of top-dressed.

Tuberous and summer flowering begonias like partial shade and plenty of water at the roots. A position well sheltered from winds is necessary to get the best results from summer flowering begonias.

FLOWER GARDEN.—Give growing plants plenty of water. Water them in the evening if possible, if not water them as early in the morning as you can.

But water them at any time rather than allow them to wilt. If watered when the sun is on them avoid damping the foliage as much as possible.

Pick flowers required for the house early in the morning. Put them into water as quickly as possible. Flowers that have once been allowed to wilt, may apparently recover all their former freshness, but the wilting process lessens the vitality of the flowers and shortens their period of usefulness and their beauty for decorative purposes.

Pick out the finest blossoms and mark them, if you wish to save seed from any particular plants. All the rest of the seed heads of either plants or flowering shrubs, should be removed as soon as they are out of flower, as the formation and ripening of the seed saps the strength of the plant, and prevents or lessens considerably, future flowering results. Many flowering shrubs, such as lilacs, syringas, deutzias and spireas produce seed very readily unless the seed heads are pinched off.

Picking the flowers thoroughly and regularly from sweet peas will lengthen their flowering period considerably.

Dahlias must be given plenty of water and



FIG. 2107. JUNE FLOWERS.

syringed occasionally. A little liquid manure will help them from now on until flowering. Cut off all weak useless shoots leaving only strong vigorous growth for flowering. Put stakes to dahlias early, or they are liable to be broken off and spoiled for the season.

VEGETABLE GARDEN.—Plant out Savoy and winter cabbage and late cauliflower as soon as possible. A row or two of beans and beet-roots can be sown, these will come in useful quite late, if the season is favorable.

A few hills of sweet corn may be planted, these will give returns if autumn frosts are not too early and severe.

Plant out celery as soon as possible, shade and water the plants until well established.

White turnips may be sown on ground where potatoes have been dug from, or where peas have been grown.

A sowing of viroflay spinach toward the end of July, will if the weather is favorable give good returns in the autumn, when fresh green vegetables are scarce.

Stir the soil amongst growing crops continually, water them thoroughly when required, late in the evening.

W. HUNT.

Hamilton.

TIMELY TOPICS FOR THE AMATEUR—XVII.

WEED-KILLING ON LAWNS IN SUMMER.

THE dry, burning hot weather that is usually experienced during July and August, taxes very heavily the assiduity and energy of those who endeavor to keep the lawn looking fresh and green at this season of the year. In spite of repeated and copious waterings, the spring and early summer freshness and rich coloring of the grass cannot be retained, unless under exceptionally favorable conditions, such as a naturally moist, rich sub-soil; or perhaps the greater part of the lawn may have the benefit of partial shade during the hottest part of the day, in addition to an abundant supply of water for irrigation purposes. Even with these favorable surroundings it is difficult to have the grass in as good condition as might be desired, and prevent the intrusion of deep-rooted, and other noxious weeds. These latter will, if not kept under by persistent care and attention, soon overgrow and eventually destroy altogether the grass and clover, the legitimate occupants of the grass plot. Coarse growing weeds, such as dandelions, plantain, docks, yarrow, etc., are very difficult to eradicate when once they are allowed to establish themselves on the lawn. On lawns where for reasons, such as a scarcity of water, or perhaps imperfect under-drainage, the sod becomes thin and of weak growth, weeds of all kinds are sure to appear.

A word or two on some of the methods and implements that are in use for eradicating weeds from lawns may perhaps be acceptable to readers of the journal at this season of the year, as too often the weeds are neglected from the fact that weeding is not at all a pleasant occupation, more especially that of weeding lawns.

No better implement can be found for

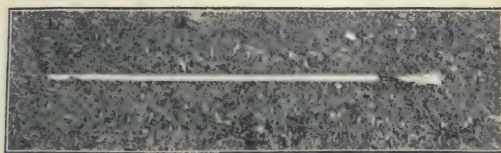


FIG. 2108. WEED SPUD.

deep rooted weeds than what is known as the weed-spud. (See Fig. 2108). This cut represents the style of weed-spud that is commonly sold in hardware and other stores, but I consider it could be much improved upon by adding a T shaped handle at the top, or by the addition of a round knob at the end instead of being straight as represented in the cut. This addition to the handle would allow of its being used effectually by ladies or children on hard, dry soil, without injury to the hands, which is often the case when only a straight handle is used.

Many readers of the journal will doubtless recognise in this weed-spud an implement that has been in common use for years not only amongst horticulturists but also amongst agriculturists in the old lands, more especially in the south and west of England. On every well managed farm in the districts mentioned, is kept a supply of these weed destroyers, not only for the use of the workmen, but the farmer himself usually carries a weed-spud with him on his daily tours of inspection. Scarcely a thistle, dock, or burdock is allowed to escape a deep down amputation of its roots with this sharp chisel-like implement, thus effectually checking, and in most cases destroying altogether the roots of these weeds. This weed-destroyer is certainly a great improvement on the short handled garden knife for rooting out weeds. The use of the last mentioned

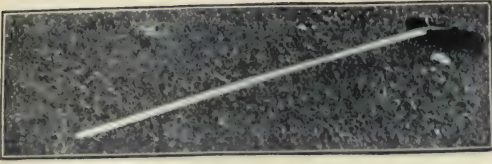


FIG. 2109. LAWN RAKE.

implement meaning at least a severe back-ache, or perhaps still worse an attack of rheumatism, by those who perhaps kneel or sit on the damp ground so as to effectually root out these weed pests. It is only recently that the weed-spud has been brought prominently to the notice of our horticulturists, but no one who has a lawn or garden should be without one of these useful implements.

The lawn rake is another useful implement to use on grass plots. This rake, as represented in the cut (Fig. 2109), is a lighter rake than the cumbersome daisy rake, so well known to old country gardeners; but it is equally as efficacious as the heavier daisy-rake in the removal of seed heads of weeds, and also shallow rooted weeds such as yarrow, sorrel, moss, etc., that infest most lawns.

A good combing down of the grass with this rake early in the spring time before grass cutting is commenced, will also effectually remove the greater part of the partially decayed growth of the previous season, as well as removing many unwelcome intruders in the shape of weeds, making the grass cutting much easier than it otherwise would be.

It often happens also at this season of the year, especially where there is very little water for irrigation purposes, that the grass requires very little cutting, but not so the weeds. Many of the latter, more especially the close growing plantains, etc., seem to grow and flourish with even greater vigor during a period of drought than at other times, throw up their seed-heads in great abundance. Even if the lawn-mower is

brought into use at this time, most of the seed or flower-heads of these plants are only bent down, and are not injured in the least by the mower passing over them. Not so with the daisy-rake, as this effectually nips off and gathers up the flower-heads, so that they can be burned, to prevent them from seeding.

Possibly many readers of the journal have already in active use on their lawns, the two weed killing implements I have mentioned, but if not I am satisfied they will be well pleased if they invest in the purchase of one or both of these weed exterminators. Stooping or kneeling about on lawns, and digging out the weeds mentioned is both tedious and laborious, but with the use of the weed-spud and lawn-rake it is not at all an unpleasant pastime. Many lawns have doubtless become thick with weeds, because of the tedious and unpleasant labor associated with weeding them with a knife. The weed-spud and lawn-rake overcome this difficulty to a great extent, making the process of weed killing much less irksome and objectionable, than it otherwise would be without them.

A new style of lawn mower has recently been introduced, having for one of its main objects the destruction of flower and seed



FIG. 2110. LAWN MOWER.

heads of weeds as well as cutting the grass. The accompanying cut of this machine is taken from the American Florist of date February 9th, 1901. From the appearance of this machine as represented in the cut, it is built, so far as the knives are concerned, on the same principle as the grass and grain mowers used on farms. Apparently it would be necessary to rake up the grass after cutting, especially if the latter had attained very much growth. It will doubtless prove to be a useful machine for cutting down flower and seed-heads of weeds, particularly on large lawns or in parks. It is manufactured by the Clipper Lawn Mower Co., Morristown, Pa., and from its appearance as represented should prove a useful factor in keeping down coarse growing weeds on lawns.

I am not in favor of using acids or other chemicals to exterminate deep rooted weeds, as the careless or immoderate use of chemicals would probably do more harm than good, in most cases. A constant and vigorous campaign during the summer against these intruders on the lawn with the weed-

spud, supplemented by the use of the lawn-rake, will in a short time rid the lawn of weeds, if at all carefully done.

Another important point in the well-doing and nice appearance of lawns—especially after the weeding process—is the matter of mulching and nourishing the grass, so as to induce a close and vigorous growth, the latter being an essential feature not only for appearances, but also to prevent coarse weeds from gaining a place on the lawn. Few of these coarse weeds are very much trouble to eradicate from a close growing, well nourished sod. But oftentimes the application of an unsuitable or badly prepared mulch only serves to intensify and increase the evil it is intended to avert, by introducing innumerable weed seeds, etc., that if allowed to grow will perhaps be found more objectionable than those that have been removed by the weed-spud and lawn-rake.

Probably in the August number of this journal I may write a few lines on the preparation of a mulching suitable for renovating lawns.

Hamilton.

W. HUNT.

BERBERIS THUNBERGI FOR ITS FOLIAGE IN AUTUMN.

NO more brilliant autumn feature among deciduous shrubs is to be found than a mass of the barberry, whose leaves before they drop change in tint to a rich fiery red that quite glows in the sunshine, while it possesses one great advantage over many shrubs remarkable for the brightness of their decaying leaves, for when at their best most of them quickly become bare, whereas those of the barberry are retained for some time. Taken altogether it is a very desirable shrub, for though of somewhat dense growth and usually assuming the character of a spreading bush about three feet high, yet its growth is very graceful. Next, the leaves when partially unfolded,

forming as they then do little rosettes of tender green along the shoots, are particularly pleasing and directly after this the flowers appear. They hang down in considerable numbers from the undersides of the branches and in color are sulphur yellow inside and brownish on the exterior. As a rule it does not berry freely, yet sometimes the berries are borne in quantity. When such is the case they form quite an additional feature, as the oblong shaped berries, though rather small, are of a bright sealing-wax red and frequently remain attached to the plant throughout the greater part of the winter, thus rendering the specimen an object of beauty long after the leaves have fallen.

The barberry, which is also known by the specific name of *Sinensis*, was introduced about a century ago, but it is only within the last twenty years that its merits have been generally recognized. Like most de-

ciduous barberries this will hold its own in dry sandy soil and seen in a mass or clump it is most brilliant, and in this way it appeals more strongly to one than isolated examples.—*The Garden, London.*

CHIONODOXA.



FIG. 2111. CHIONODOXA.

This spring a little group of chionodoxas were so early in bloom, and so very showy, growing along the foundation wall, along the east side of the house, that we determined to have a photograph, and Miss Brodie has well succeeded in showing it at its best.

The name is from two Greek words meaning Snow and Glory, and the common name Glory of the Snow has therefor an ancient origin. The plants are natives of Crete and Asia Minor, and are closely allied to *Scilla*, which, with the Snow Drops are all companions in early bloom. They were introduced into cultivation 1847 and have since been widely cultivated.

Prof. Bailey in his *Encyclopedia of Horti-*

culture says "Chionodoxas thrive in any fertile soil, well drained and not too heavy and in any exposure, the main requisite for growth being that they have a light and an adequate supply of moisture while growing and until the foliage is ripened. The bulbs should be planted about three inches deep, and closely, say an inch or two apart. Lift and replant about the third year. They need no winter covering. They flower well in pots in winter, in a cool house temperature. They must be forced only gently and given abundance of air, light and moisture. They are increased by offsets and seeds, which they produce freely. Under favorable conditions, they increase rapidly by self sown seed.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

YORK IMPERIAL.—Judge Wellhouse, of Kansas, has 200 acres of York Imperial apples, and finds them handsome and better flavor than Ben Davis, but would not entirely discard the latter for them.

NEW PEACHES.—Bull. 137, Mich., gives the following notes :

Arctic—Slow to bear, and quite unproductive ; medium size, greenish yellow, dry of flesh, poor quality.

Crosby—Not so hardy as claimed, and inclined to be small in size.

Crothers—Originated on farm of Mr. Crothers, Kansas, medium to large white peach, with red cheek, and has borne abundantly at station ; ripens just before Gold Drop.

Gold Drop—Hardy and productive to a fault. When severely thinned, one of the most profitable late market kinds ; last of September.

Sneed—Originated by J. L. T. Sneed, of Tennessee, six days earlier than the Alexander ; aside from its earliness it has little to recommend it.

PEARS FOR EXPORT.—That the Ontario pear crop will be a large one seems well assured, and the disposal of it to good advantage will not be easy unless our foreign markets are accessible. Preparations are being made by the Department of Agriculture at Toronto which no doubt will make this possible whenever enough pear growers can be induced to unite and make up a certain quantity each week, and fill the compartment.

Already it is high time for those intending to export their pears to provide boxes and packing material, and be prepared for the busy season. The box used by those of us who have been experimenting in the export

of pears, is of the following dimensions: $22 \times 11 \times 5\frac{1}{2}$, which takes from 60 to 80 pears, according to the grade. We prefer to have these boxes open on the broad side, the whole of the cover to be removable, and thus expose to the buyer the whole contents. Usually a box taking two layers deep is best, and all the fruit in a box should be of uniform size.

Grade A No. 1, measuring over $2\frac{1}{2}$ inches in cross section, sometimes sells in Glasgow at from 7 to 10 shillings each, a most respectable figure, which if procurable by even a company of growers in each pear centre, would soon cause a stir, and bring about a rapid development of the industry.

The great trouble is that we have not quantity enough of any variety in any one section; our growers have planted too many varieties, and in this there is little or no profit.

We need to plant acres of our finest variety, and then we would soon find ourselves in favor in the great European markets.

GEORGIAN PEACHES are beginning to be shipped north (June 29th).

THE NEWTON PIPPIN APPLE is yielding well this year in Watsonville, California, the yield being estimated at 500 carloads, and buyers are already offering $67\frac{1}{2}$ cents a box for 4-tier No. 1 apples in car lots.

THE NEW APPLE BARREL authorized by the Dominion for use in 1902 is smaller than that adopted by the American apple shippers. Their's has a head diameter of $17\frac{3}{8}$ inches, staves $28\frac{1}{2}$ inches long, and a bilge 964 inches outside measurement. Our barrel $26\frac{1}{4}$ inches between heads, a head diameter of 17 inches, and a middle diameter of $18\frac{1}{2}$ inches, and is intended for apples, pears and quinces.

CHERRIES WANTED IN NEW YORK CITY.—We have a letter from A. L. Causse Mfg.

Co., 105 Hodson St., New York, asking for large daily consignments of sour cherries which they want for curing in sugar. A good hint for helping the keeping qualities of the fruit is given, viz., to expose the fruit packed in baskets, or in such packages as would allow the air to go through, to vapors of sulphur. "This," they write "is done greatly in France, where cherries before shipping are put in a closed room, in the centre of which a half pound or so of sulphur is ignited and allowed to burn. Cherries thus treated will keep a good while without decay. You may refer to Dunn's agency as to our credit."

Too bad that no one in our province has enough sour cherries to meet this good opportunity for a ready sale.

CURRANTS.—To get the best results from currants they should be planted in good, deep, rich soil in a cool location. Plant six feet apart each way. Keep the soil well worked until they commence to bear, and then the soil should never be worked till the fruit is gathered. Mulch around each bush with straw to keep down weeds. Remove the straw after the fruit has been gathered, and work the soil well, but shallow, and manure every third year, and the other years give a dressing of wood ashes. Trimming consists both in black and red varieties, in keeping a well balanced crop, thinning out each year all the young shoots from the bottom to about four or five of the strongest, and after the bushes are four years old then cut out an equal number of the oldest canes each season. In this way they will continue productive for twenty years, and under favorable conditions much longer. Currants are very hardy and easy to start from cuttings. Every garden should contain currant bushes enough to supply the family with jelly and jam for the season at least. The enemies of the currant are few, the only one of consequence being the currant worm,

which hatches about the middle of May to the first of June, and eats the leaves all off if left alone. A sprinkling with hellebore, either in solution or dusted on dry, will soon rid the bushes of them. As to the best varieties, I would recommend for black, Lee's Prolific, and for red, Fay's Prolific. Lee's Prolific is enormously productive, the fruit

is large and of a superior quality, and the bush is a vigorous grower, making it very profitable. Fay's Prolific is the largest red currant yet introduced, being the greatest for size and productiveness combined.—*W. Warnock before the Goderich Horticultural Society.*

QUESTION DRAWER.

The Currant Plant Louse.

1228. SIR,—I enclose you leaves of white and red currants. Kindly let me know what is the matter with them.

Durham.

JAMES A. BROWN.

The currant leaves sent by Mr. J. A. Brown of Durham, are attacked by the currant plant louse (*Aphis ribis*) some of which are on the leaves you sent. Although rendering the bushes for a time unsightly these insects seldom injure the bushes to an appreciable extent. Spraying the foliage from beneath with whale-oil soap solution or kerosene emulsion will destroy the aphids, but it is well to look first and see if there be not enough Lady-bird beetles or *Syrphus* fly larvæ destroying the plant-lice to render any treatment unnecessary.

Entomologist, J. FLETCHER.
Central Exper'l Farm, Ottawa.

A Small Greenhouse.

1229. SIR,—Would you kindly tell me if it would answer to have a small greenhouse attached to a dwelling house heated by a hot air furnace, or whether the heating must be by hot water, and if the latter what the difference in cost would be?

Port Dover,

E. P. B.

Reply by Prof. Hutt, O.A.C., Guelph :

A small greenhouse attached to the dwelling house could as easily be heated by means of a hot-air furnace as by the hot-water system unless too far from the source of heating. The hot-air system, if it could be worked, would certainly be much cheaper

than the hot water, as the expensive piping would not be necessary. The difference in cost, however, would depend upon the size of the greenhouse.

A Rose Insect.

1230. SIR,—A few days ago I observed many tips of rose bushes in my garden drooping and withered, and, on examination, I found a maggot, over a quarter of an inch long, had eaten the pith out of the tip for about an inch or two, working downward from the point. What is this and how can the depredation be prevented?

Hespeler, Ont.

H. J. BROWNLEE.

The grub which is boring into the canes of the rose bushes of Mr. Brownlee is the larva of a beetle, whose name I am unable to give at present. Mr. Brownlee very kindly sent me some specimens of infected canes, from which several grubs were taken. It is pretty certain that the best remedy is to cut off and burn all infected twigs, for in this way the life-history of the insect is abruptly terminated and the succeeding stages cut off.

W. LOCHHEAD.

Mouse Ear Chickweed.

1231. SIR,—I enclose herewith a specimen lot of a weed which is destroying lawns in this locality, and would be pleased to know its true name, etc., and how to best get rid of it. It is of such a creeping, low nature that a lawn mower has no effect on it.

Chatham Ont.

GEO. MASSEY.

Reply by Dr. Jas. Fletcher, Central Experimental Farm, Ottawa :

The weed sent by Mr. Massey from Cha-

tham is the Mouse-Ear Chickweed (*Cerastium vulgatum*). This is a creeping perennial plant which is sometimes troublesome on lawns. It generally first appears in patches, which gradually increase in size, until sometimes lawns are quite ruined and require to be ploughed up and laid down afresh. When not too abundant on a lawn, the treatment which has given me the greatest satisfaction is to give the patch frequent and heavy rakings, and then sow on them a mixture of Kentucky blue grass and white clover, using the seed in the proportion of two bushels of the former and four ounces of the latter to the acre.

Lemon Trees Not Flowering.

1232. Sir,—I have a lemon tree about ten years of age and it has never bloomed. I am told that, as it is a seedling, it will not produce blossoms unless it is grafted from another that has flowered. As I am unable to procure grafts here, I thought you could probably tell me where I could get some, and the cost.

Oakville, Ont. MRS. A. D. CHISHOLM.

Reply by Dr. James Fletcher, Central Experimental Farm, Ottawa :

In reply to Mrs. Chisholm's enquiry, the lemon like all other cultivated fruits is improved by hybridising, and all new varieties come from seeds, so it is plain that her plant being a seedling is not the reason it does not flower. It is just possible of course that if a graft were obtained from a mature tree that it might flower sooner than otherwise. I am inclined to think that a different treatment, such as the curtailing of plant food and pot room, might have the effect

of producing flowers. In the limited experience I have had in growing these plants in conservatories and greenhouses I have noticed that the lemon is a shyer bloomer than some few species of orange which I have grown here. Grafts of a mature lemon tree could be procured at the proper time from most of the large florists or from correspondents in California or Florida.

Small Greenhouse.

1233. SIR,—Please tell me would it answer to have a small greenhouse attached to a dwelling heated with a hot air furnace, or if it is necessary to have hot water heating. If the latter, what would be the difference in expense?

Small greenhouses attached to dwellings may be heated from a hot-air furnace, but the plants, for the most part, will not do as well when hot water is used, and care will be needed to keep down the red spider.

The expense of hot water heating plants is about double that of a hot air furnace, but, after they are installed, they will be much more satisfactory, as they are more economical of fuel and give a pleasanter heat, which is more evenly distributed.

Where one has a hot air furnace in their residence and is to build a small conservatory, say not over 15 by 20 feet, it will answer, in case a hot water coil cannot be placed in the furnace, to place a register in the greenhouse and run a pipe to the furnace, but for larger houses an independent hot water plant is advisable, unless the heating system in the dwelling is changed to hot water.

L. R. TOFT.

Questions Answered.

How to Get Rid of Ants.

I have been asked to give through the Horticulturist my methods of getting rid of ants. I will give two methods. One that I have practiced for years is:—First disturb the hill, then place immediately over it a

dish, box or large flower pot. In about two days come along with a kettle of boiling water, lift up your dish and you will find the ants have nested on the surface of the ground immediately under it when they can be easily scalded. If the ant hill is

close to the root of a plant, disturb as before then place the dish a few inches from the plant; the ants will follow the dish and nest under it when they can be scalded without injury to the plant. One thing to be careful about is never raise the dish to see what the ants are doing till you are ready with the hot water or they will take warning and the next time you look for them they will have retreated under the surface.

Another method is :—Catch a toad, place

it under a dish, box or flower pot over the ant hill. Leave it there for three or four days, according to the number of ants and the capacity of the toad. When you raise the dish you will find the toad waiting to be moved to fresh feeding grounds with not an ant in sight. This is the simplest and surest method of getting rid of ants I ever tried. Sometimes it is necessary to place a stone on the dish or box to keep it down solid.

Mitchell.

T. H. RACE.

Open Letters.

Deciduous Shrubs.

SIR,—In an article in the May number of your journal, a list of hardy shrubs is given as a guide to those who would buy something reliable for their grounds.

I would say that the list contains some that are not hardy here at Port Huron. If they fail here I fear that they would do so over a large portion of your country.

Of the Deutzias, *Pride of Rochester* fails entirely; *Crenata*, leaves subject to rust; *Crenata*, *flore pleno*, a little better but fails to winter sometimes; *Gracilis* is not reliable; *Scabra* stands the winter the best of family.

Only few of the *Altheas* are sure to go through the winter. I lost all of my light colors last year. The red was injured only a little.

Spiraea Prunifolia kills a little. Several varieties of *Spiraea* are tender.

Tamarix can not be depended on.

Negilia Candida is tender, so is the *Smoke tree*. None of these are any more hardy than the peach. Where that kills, these are liable to kill. I make this statement hoping it may help some.

Port Huron, Mich.

L. B. RICE.

Bind Weed.

SIR,—I noticed the question on the 253 page of the June number of the *Canadian Horticulturist*, respecting vine weed or bind weed.

Six years ago I had wild morning glories among my raspberry bushes, in one part of my garden. These I got rid of by careful weeding and digging, without removing the bushes.

Later, however, I discovered another plant, or weed, very much resembling the wild morning glory, which I think must be the one known as bind weed. At first it was confined to one square yard in a flower bed. I fought it for a couple of years with ordinary weeding and digging, but I found, instead of being destroyed, it had spread over about a square rod, even making its way

under the hard beaten paths, and reappearing in the soft soil beyond.

In the fall of 1890, I dug the whole patch, and picked out with my fingers, every root I could find, no matter how small. The next spring, however, it appeared again, here and there over the patch. During the summer of 1900, I continued the fight. Wherever I found the weed, I dug around it carefully, often tracing the root down into the hard subsoil, two feet below the surface, and still it was going downwards. When I had taken out the root to that depth, I poured into the hole from half a cupful to a cupful of coal oil, and filled up the hole.

This summer, so far, I have not seen one of the weeds in my garden, and I am hopeful I have exterminated them.

Hespeler, Ont.

H. J. BROWNLEE.

Fruit for the Pan-American.

SIR,—For the past few weeks we have been able to place on the tables of the Ontario Fruit Exhibit, a very nice collection of apples in the fresh state, and a variety of fruits in glass. Our display so far has been very much admired by the large number of visitors attending from day to day.

As the season for the various small fruits is now here it is very desirable that as large a number as possible of our fruit-growers and shippers, should be interested in the project of sending over samples of the very best fruit to be obtained, in order to maintain the high standing as a fruit producing country, which we at present occupy.

I will be extremely pleased if you will write me at your earliest convenience as to what fruits you are likely to have, and as to whether you may be able from time to time, to send me a few fine specimens of fruit from your neighborhood.

You may rely that no effort will be spared in order that all exhibits sent forward may be brought prominently before the Jury of Awards from time to time, so that every exhibitor may receive full recognition when the awards are finally made.

The awards will be made on a basis of merit independent of any other exhibit and will not be competitive as at ordinary fairs, so that any person sending in fruits may expect to receive such recognition as their exhibit may warrant.

We have made arrangements to pay the transportation charges on all fruit sent in, and will be glad to forward you shipping tags and labels as you may require.

W. H. BUNTING, Supt.

Buffalo, N. Y., June 20th, 1901.

Paradise Stock Hardy.

SIR—Replying to query No. 1215, in your issue for May, I beg to state that the root of the Paradise apple (used as a dwarfing stock) is apparently more hardy than that of the common apple.

In the spring of 1898 I planted five trees of the Bismark apple, budded on Paradise stock. During the following winter, February 1899, occurred the "big freeze" when all apple trees in nursery and many in orchards throughout the central west were root killed, yet the Paradise roots were uninjured. The Bismark trees were planted in clay soil in an exposed situation. The roots were not protected by banking or mulch and there was no snow on the ground when the freeze came.

The aforesaid trees have not yet shown any tendency to fruit, and in this respect do not sustain the claim of the introducers.

M. J. GRAHAM.

Fruit Reports from Algoma.

DEAR SIR,—Yours of the 22nd inst. received, you will no doubt have my report before this, that is, the blanks you sent.

More particularly in answer to yours of the 22nd, I may say that we have a full crop of apples, more especially winter varieties, which were only fair last year. Wealthy, our well tried stand-by, is doing as well as ever, we have got nothing equal to it yet up to the end of February.

Small fruits, a full crop. Strawberries, especially, an enormous crop with Clyde to head the list; first picking on the 15th of June.

The behaviour of young fruit trees this spring has rather upset my previous ideas as regards hardiness, but as none of us like to have our pet theories upset I have come to the conclusion that the variety had little to do with our losses.

Last fall was very peculiar in Algoma, excessive rains with warm weather kept young trees growing right up into winter. On the 7th of November snow fell and never left the ground until the beginning of April; this was a full month earlier than usual for winter to come on, and most of the young trees were growing and had not formed their terminal buds, leaves were frozen on the tops and were hanging thus in spring. I notice that those that matured their wood early came through all right. The chances are we may not have such another fall in 20 years. Among those which suffered most are Sweet Bough, Blenheim Orange, Stark, Red Astracan, Red Buttinghausen. Among pears, Idaho and Kieffer, the last was growing two inches a week when winter came on. Flemish

Beauty came through best. Among plums all have done well. America was frozen back but not killed. Some of the Japans were a sight to see this spring, covered with bloom, only a few fruits set. Cherries have all done well and show some fruit. English Morellos, especially Ostheim, will have to take a second place. It is perfectly hardy but is a dwarf and a shy bearer.

I am, yours truly,

Richard's Landing.

CHAS. YOUNG.

Spring Notes From St. Lawrence Experiment Fruit Station.

SIR,—The first half of May has been moderately warm with frequent showers. Grain seeding progressed rapidly from April 27 to May 8th. Since that time the ground has been so wet and rain has been so continuous that very little seeding has been done. Many farmers in the county that have low lying farms have not been able to sow any grain, and at this date (June 3rd) some fields are covered with water. Corn and potatoe planting will be very late, if done at all, in some cases only light sandy or well-drained fields will be fit for cultivating within the next 10 days. Grass is growing rapidly and prospects are bright for a good hay crop. Cattle have been out on pasture since May 6th.

Of the different varieties of fruit in the Experimental Station all came through the winter in good condition and there are no losses except the Japan plum Kelsey.

Blossom buds some of the European varieties of plums perished and some of the Japanese.

Cherries in bloom, Ostheim, Vladimir, E. Morella, Montmorency, Early Richmond.

Buds injured, Reine Hortensa, May Duke.

Plums in bloom, Shippers' Pride, Yellow Egg, Genii, Wolf Wyant, Forest Rose, Forest Garden, Hammer, Chas. Downing, Rockford, Whitaker, Col. Wilder, Milton, Weaver, Gold, Mana, Ogon.

Buds injured, Lombard, Grand Duke, Tatge, Hughes' seedling, Moore's Arctic Saunders, Blood, Normands, Abundance, Berkman's.

Pears in bloom, Clapp's Favorite, Dempsey, Petite Marguerite, Keiffer, Bessemianka, Beurre Clarigean (top graft).

Apples in bloom, Chanango Strawberry, Longfield, Ontario, Salome, Peter, Hurlbut, Yellow Transparent, Milwaukee, "Downing's Winter Maiden's Blush," Alexander, Shackelford, Polousa, Brockville Beauty, Excelsior, McIntosh Red, Fameuse, Canada Red, Baxter, Belleflower, Scarlet Pippin, Wealthy Duchess, Talman Sweet, G. Russett, Ribston Pippin.

Trees were in blossom about eight days earlier than in 1900 and we have had no frost to injure the blossoms.

Fruit is set fairly well and apples in this section will be a good average crop, say 60 to 75 per cent. of a full crop.

Fameuse is the principal variety. Late winters do not cut much figure in the market, but give promise of a 50 per cent. crop. Insects have not multiplied very rapidly and foliage has a fine healthy appearance. Spraying has been neglected

in many instances and the fruit may suffer in consequence later on if spot develops rapidly.

HAROLD JONES.

Maitland, Ont., June 3rd, 1901.

A Remedy for Weeds in Walk.

A correspondent writes that he has used Gillett's lye for destroying weeds and grass that grow up in gravel walks and through slats, with success. He says:

"A fairly strong solution should be made and poured carefully between the slats, and in a day or two all the unsightly grass and weeds will have disappeared. I find that by applying a very small quantity of the solution to the roots of dandelions, that it instantly destroys them, and as the root is killed, there will be no further growth. For latter purpose the solution can be applied with a small sprayer or a large oil-can. By adopting the same method in the treatment of other weeds, a similar result can be obtained.

The Tent Caterpillar.

SIR,—This section of Ontario is a present receiving the attention of the Tent Caterpillar to such an extent that even that proverbial wise man "the oldest inhabitant" has never seen anything like it. A trip through the country in any direction in South Waterloo, and North Bruce, shows that the orchards in many localities are literally laden with these pests. All along the road sides, also where the wild cherry and plum trees grow, the same condition exists and the fruit trees are being rapidly denuded of their leaves. The same state of affairs would have prevailed in Paris, but our local Horticultural Society set a man to work to destroy the caterpillars on the wild fruit trees which grow so plentifully on our streets, and this

example has had a good effect, as many of the town people are heartily seconding the effort. Still many are careless and the prospect is that not only their own fruit trees will be permanently injured, but their neighbors are certain to suffer also.

The Town Council, at our request, has also set men to work and large numbers of useless trees are growing on the public streets. But the difficulty is now with the careless and indifferent people who are permitting the pests to mature, and in some parts of the town the caterpillars are to be met with on the sidewalks, crawling on the fences and into the houses, until the more thoughtful and careful people are wondering where the business is going to end. There can be but one result, the destruction of all fruit trees where the caterpillars are allowed to increase and multiply.


Can you inform me what power a municipal Council has in this matter, and whether a By-law cannot be passed which will give the necessary power to the police to punish people who permit such a nuisance to continue on their premises?

Paris, Ont.

JOHN ALLAN,
President, Paris Hort. Soc.

There is a *Noxious Insect Act*, recently passed by the Ontario Legislature, which provides that at the option of a municipal Council, its provisions may be applicable, and the Lieutenant Governor in Council, on the recommendation of the Minister of Agriculture, may make such regulations for the prevention and destruction of insects injurious to trees, shrubs and other plants, as may be deemed advisable.

OUR FRUIT CROP REPORT.

 THE apple crop generally, as will be seen from the table of reports given herewith, is a comparative failure in Ontario. The same is true of the apple crop in New York, and indeed in most of the Eastern States. This would indicate a better price for our apples, unless the reports should prove true of a heavy apple crop in the West.

The pear crop is pretty good, especially Bartlett's, although in some quarters even these are a thin crop.

Peaches are also good, though considerably thinned by curl leaf.

Cherries are a very poor crop. Gov. Woods are now ripening, but are very much blighted; the Tartarian will give about a half crop, while the Dukes, Morellos and Kentesh are all a comparative failure.

The California cherry crop is reported to be a failure also, so that cherries should bring an excellent price in our markets.

The Hudson River crop of sweet cherries is reported good, but the sour varieties are not heavily loaded.

The following table shows the conditions of the fruit crop in various parts of Ontario:

ONTARIO FRUIT CROP.

Apples.	Blackberries.	Cherries.	Currants.	Gooseberries.	Grapes.	Peaches.	Pears.	Plums.	Raspberries.	Strawberries.	REMARKS.
LINCOLN Co.— A. M. Smith, St. Catharines.	Fair.	Poor.	Fair.	Fair.	Fair.	Fair.	Fair.	Good.	Fair.	Very g'd	Plums stung by curculio.
WENTWORTH Co.— M. Pettit, Winona.	Good.	Fair	Good.	Good.	Very g'd	Fair.	Very g'd	Good.	Good.	Very g'd	Pears badly affected with fungus.
W. M. Orr, Fruitland.		Good.			Good.	Fair.	Very g'd	Very g'd		Good.	
VICTORIA Co.— Thos. Beall, Lindsay.			Fair.	Very good.	Poor.		Good.	Good.	Very g'd		
ESSEX Co.— A. McNeill, Walkerville	Good.	Good.	Good.	Good.	Very good.	Good.	Good.	Good.	Fair to good.	Very g'd	
ORILLIA— C. L. Stephens.	Good.	Poor.	Fair to v. good.	Extra good.	Good.			Good.	Fair.		
ONTARIO Co.— Elmer Liek, Oshawa.	Poor.			Good.	Good.			Very g'd	Good.		
R. L. Haggard, Whitby	Fair to good.	Fair to good.	Fair to good.	Good.	Good.	Poor.	Good.	Very g'd		Very g'd	Apple crop almost a complete failure.
GEORGIAN BAY DIST.— J. G. Mitchell, Clarksburg.	Very good.				Good.						
OTTAWA— E. B. Whyte.	Fair.	Fair.	Good.	Good.	Good.		Fair to good.	Fair.	Good.		
NIAGARA DIST.— E. Morden, Niagara	Good to poor.	None.	Good.	Good.	Good.		Good.	Very poor.	Fair to good.		Cuthbert and Golden raspberries winter killed.
Falls South.	Poor.	Good.	Good.	Fair.				Good.	Good.	Good.	
OXFORD— J. S. Scarff, Woodstock.	Good.	Fair.	Good.			Good.	Fair to good.	Fair.	Good.	Very g'd	Plums dropping and decaying badly.
PERTH— T. H. Race, Mitchell.	Good.	Good.	Good.	Good.		Good.	Good.	Very g'd	Good.	Very g'd	
GRENVILLE— W. Jones Maitland.	Good.	Poor.	Good.	Good.		Good.	Good.	Very g'd	Good.	Very g'd	
ESSEX Co.— W. W. Hilborn, Leamington.	Good.	Poor.	Good.	Good.		Good.	Poor.	Very g'd	Good.	Very g'd	
ALGOMA— Chas. Young, Richard's Landing.	Poor.	Fair.	Fair.	Good.		Good.	Poor.	Very g'd	Poor.		Raspberries much injured last winter.
HALTON Co.— A. W. Peart, Freeman.	Good.	Fair.	Good.	Good.			Fair.	Fair.	Good.	Very g'd	Fungus beginning to show on pears and apples.
GREY Co.— J. Graham, Vandeleur.	Fair.	Very g'd	Fair to good.	Good.	Fair to good.	Poor	Fair.	Very g'd	Fair.	Fair.	and fruit is dropping off badly.
HASTINGS Co.— W. H. Dempsey, Trenton	Fair.						Fair.	Very g'd	Good.	Very g'd	Scarcely any caterpillars, but plenty of aphids and curculio.
SIMCOE Co.— G. C. Gaston, Craighurst.	Poor.	Very Good.	Very g'd	Good.	Good.	Very	Fair.	Very Good.	Fair.	Fair.	
	Very Good.					Good.	Good.	Good.	Fair.	Fair.	

FOR SALE—50 ACRE FARM

A DJOINING Miss Rye's Home Grounds, just outside the town of Old Niagara, two miles from Niagara & Toronto Steamship wharf and near the Michigan Central Railway station. Excellent fruit land, partly planted; good buildings about ten years old. About three acres will be reserved, but for the balance no fairly reasonable offer will be refused, as the owner has gone to England.

Apply to **BEVERLY JONES**, Canada Permanent Bldg., Toronto,

or **D. J. McKINNON**, Grimsby, Ont.

Free Help Exchange

This department is to be opened for the benefit of the numerous applicants to this office for opportunities of work on a fruit farm. Our fruit growers also are very often in great need of help, and this will lead them to meet the persons who are desirous of work.

Those wishing help should mention kind of work, wages with or without board, length of engagement, etc.; those wishing employment should give experience, reference, age, kind of work wanted, wages expected.

These notices will be published free in two successive issues of this journal.

A Squirrel's Delicious Breakfast.

In telling "The Story of a Maple Tree," in The Ladies' Home Journal for July, William Davenport Hulbert writes: "It happened that the tree lost one of its branches in a February ice-storm, and a week or two later, when warmer weather arrived, the sap began to drip from the open wound in the side of the trunk. A red squirrel came along at just the right moment, as it chanced, and got a taste of the sweet liquor. Here was something new and very delicious, and he drank so much of it that if it had been intoxicating he would certainly have lost his head. And one morning he found something that even you would have enjoyed, the sap had been flowing most of the night, a big icicle had formed just below the wound, and from its very tip there hung a huge drop of golden maple syrup—syrup made by Nature's freezing process, not by man's boiling, and far more delicious than anything that ever saw the inside of a sap-pan.—From the Ladies' Home Journal for July.

MAZZARD CHERRY SEED

Fresh Crop. Best Quality.

Write for prices on all fruit seeds, and Raffia.

THOMAS MEEHAN & SONS,
Nurserymen & Tree Seedmen,
Germantown, Phila. Pa.

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Active Country Agents for Province of Ontario to ship fruits to reliable firm. Good advantage for right man. Will pay 24% commission on shipments. \$10.00 easily earned in a day. For particulars address **EXPORTER**, Box 2163, Montreal.



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St. Catharines, Ont.

To Get the Best Results From Refrigerators.

There are many people who from a false idea of economy fail to get the best results from the use of ice and refrigerators. A common mistake is getting a small piece of ice every day or every other day, instead of filling the ice chamber two or three times a week. The small piece of ice cannot reduce the temperature sufficiently, and the result is that each new piece melts rapidly and the food cannot be kept long. It will be found at the end of the season that the cost of ice and waste of food have been much greater than if the ice chamber had been kept filled.—**MARIA PARLOA**, in The Ladies' Home Journal for July.

FARM FOR SALE.

THREE SIXTY AN ACRE FOR CHOICE
25 ACRES; sandy loam; twenty in fruit; good buildings; two miles east of Hamilton; convenient to cars. **MARY A. DONOHUE**, Bartonville.

Literary Note.

BIRD-LORE (The Macmillan Co.) for June may be called a Burroughs number. That popular literary naturalist contributes an interesting story of "A Bewildered Phoebe," and **BIRD-LORE's** editor, Frank M. Chapman, gives an illustrated account of a bird-nesting expedition with Mr. Burroughs, in which the theory and practice of bird-nesting are set forth with pen and camera. An article by Annie Trumbull Slosson, the fourth of a series of helpful papers on "Birds and Seasons," and numerous notes from bird students go to make an unusually valuable number.

OUR BOOK TABLE.

CACTI.—Supplement to the Circular and Price List of J. H. Callander, cacti specialist, Woodstock, Ont.

HOW TO MAKE MONEY! is the title of a little pamphlet on spraying with Gillett's Lye, which may be had free of charge on application to Gillett's Chemical Works, Toronto, Ont.

APPLE CULTURE, and district lists of apples suitable for Ontario and Quebec, with descriptions of varieties, by W. F. Macoun, Horticulturist, Central Experimental Farm, Ottawa.

NOTES FROM THE PLUM ORCHARD, Bull. 101, Kansas.

THE WOMAN'S AGRICULTURAL TIMES, edited by the Countess of Warwick, Reading, England.

How French Girls Are Educated.

The children of the lower classes in the country, as well as in town, all go to public schools. Little girls of the better class have an English or German nursemaid or a resident governess. When they are sent to a boarding-school they go to some convent, but in Paris courses which leave the young girl most of the time at home are preferred. The courses are weekly, semi-weekly or even daily classes. The government schools have hitherto been attended mostly by the free-thinking element. Private schools are fast being transformed into day schools. Then there are private teachers for those arts called "accomplishments," which occupy a prominent place.—TH. BENTZON (MADAME BLANC), in The Ladies' Home Journal for July.

Books for Fruit Growers.

BAILEY—Annals of Horticulture	\$1 00
Field Notes on Apple Culture	75
The Nursery Book	1 00
The Survival of the Unlike	2 00
The Forcing Book	1 00
Horticulturist's Rule Book	75
Garden Making	1 00
Plant Breeding	1 00
Pruning Book	1 50
Principles of Fruit Growing	1 25
Cyclopedia of American Horticulture, 4 vols., per vol.	5 00
CARD—Bush Fruits	1 50
CROZIER—How to Grow Cauliflowers	1 50
GREEN—Vegetable Gardening	1 25
GREINER—How to Make the Garden Pay	2 00
New Onion Culture	50
HUNN & BAILEY—The Amateur's Practical Book	1 00
MAYNARD—Landscape Gardening	1 50
MITCHELL—Tomato Culture	15
NICHOLSON—Dictionary of Gardening, 4 vols	20 00
REXFORD—Flowers	50
SAUNDERS—Insects Injurious to Fruits	2 00
TAFT—Greenhouse Management	1 50
VOORHEES—Fertilizers	1 00
WEED—Spraying for Profit	50
WRIGHT—Botany	50

Orders accompanied by the Cash may be sent
Office of CANADIAN HORTICULTURIST.

Windsor Salt

Purest and Best for Table and Dairy
No adulteration. Never cakes.

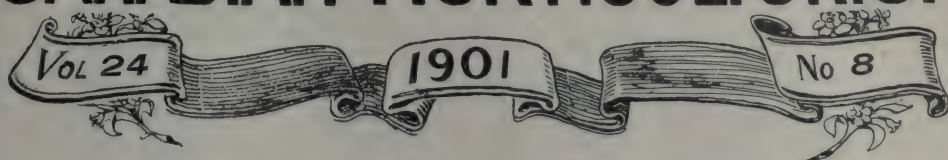




Photo by Miss Brodie.

FIG. 2112. THE CROSBY PEACH.

THE CANADIAN HORTICULTURIST



* * AUGUST * *

THE CROSBY PEACH.

(EXCELSIOR, HALE'S HARDY.)

IN this journal for the month of October, 1892, we gave a colored plate of the Crosby, and a description of the same, as gleaned from the experience of others. In this number we give a photograph of an actual specimen, grown under favorable conditions, at Maplehurst, in 1900, with the accompanying description as made from the fruit itself. It is perhaps needless to say that both these latter, being made by a fruit grower in the interest of his fellows, differ considerably from the former which were got up in the interests of the speculator who was making money out of his new introduction. Then, our colored plate showed a specimen four inches in diameter; now, our photograph shows only $2\frac{3}{4}$, while the average, in ordinary conditions, is only two inches. We spoke of it as attractive and unusually hardy, but now we are disappointed to find it undersize and very little if any more hardy than other varieties. Mr. Woodward said of it at the meeting of the Western New York Horticultural Society in 1900, comparing it with the Elberta, "You can sell Elbertas for four times the price of the Crosby."

On the whole, therefore, we are not in-

clined to boom this variety very much because our markets demand large sized fruits and will not pay high prices for a grade running as small as two inches. The following is a description of this peach :

ORIGIN.—Massachusetts, 1876, by Mr. Crosby, nurseryman; named Excelsior by Massachusetts Agricultural College; Hale's Hardy because Mr. J. H. Hale was the first grower to plant it extensively; and finally Crosby by the United States Division of Pomology.

TREE.—Vigorous, healthy, fairly hardy and very productive.

FRUIT.—Medium size, 2 inches to $2\frac{1}{4}$ in either diameter; form almost round, slightly one sided; color yellow, with bright red cheeks, very pretty; cavity deep, abrupt; apex small in a slight depression; suture traceable.

FLESH.—Color, bright yellow, red at the stone; texture fine, moderately juicy, tender; flavor sweet and very agreeable.

SEASON.—Sept. 20th to Oct. 5th.

QUALITY.—Very good for dessert, and good for cooking.

VALUE.—Good for home market.



FIG. 2113. ONTARIO FRUIT EXHIBIT.

PAN-AMERICAN HORTICULTURE—III.

OUR EXHIBIT OF SMALL FRUITS.—On the 18th of July we found our Ontario Court beginning to fill up with fresh currants and gooseberries, which, combined with the cold storage apples already on the tables, made a most attractive collection. Credit is due to those persons who freely contributed to this exhibit, as for example, Mr. Arthur W. Peart of Burlington, who sent in a sample branch of each variety of currant he had in his collection as experimenter, and Mr. Stanley Spillett, Nantyr, for a collection of nineteen varieties of gooseberries, some of them mag-

nificent in size. Many of these the writer put up in glass bottles for a permanent exhibit throughout the season. Mr. E. B. Stevenson of Jordan Station, also sent in a fine collection of bottled strawberries, put up in kerosene.

The following is a list of some of the other exhibits and exhibitors, viz.:—

GOOSEBERRIES.—T. R. Merritt, Luther Dunn, Thos. Beatty, John Sexton, St. Catharines; and Jas. D. Strange, Moffat.

CUT FLOWERS FOR DISPLAY.—Morris Stone and Wellington, Fonthill; A. G. Hull & Son, St. Catharines.

SMALL FRUITS.—Titterington Bros., St. Catharines, Mr. Hagarman, Oakville, W. M. Orr, Fruitland (fifteen varieties of cherries, the finest shown, the result of thorough spraying), F. G. Stewart, Horner; Van Duzer & Griffith, Grimsby; Orser & Son, Bloomfield, Ont. (some magnificent Olivet cherries, a new Duke of great promise), John Scott, St. Catharines; Parnell Bros., St. Catharines (seedling cherries); W. A. Honsberger, Jordan; Richard Painter, E. Kennedy, W. W. Hill, and A. Railton, St. Catharines; Mr. Railton showed the first Cuthbert raspberries, and, so far his are the finest sent in.

The writer sent in a collection of horticultural literature published by the Ontario Fruit Growers' Association. This exhibit brought us a diploma and a medal at the Columbian Exposition, and also at the Paris Exposition, and no doubt will do the same at the Pan-American; also a collection of fruit.

Comparing our exhibits with others we find Ontario ahead in the size of gooseberries, while New York State, so far, leads in the display of currants.

NOVELTIES.—A novelty is shown in the latter exhibit, by Mr. E. H. Fay, of Portland, N. Y., son of the originator of the Fay Currant, which he calls the New Chautauqua Climbing Currant. The following is Mr. Fay's account of this currant:—

The Chautauqua Climbing Currant was found in an old slashing. It attracted the attention of Mr. Lonnen of Mayville, N. Y., who was passing that way. Seeing a plant or vine covering a log, and loaded with fruit that had the appearance of currants, he secured some slips, and set them out by the side of his house, intending to return later and make a more thorough examination and remove the plant to his grounds, but before doing so fire destroyed it. As good fortune favored, one of the slips grew, and it made such a rapid growth that from time to time



FIG. 2114.

he took small pieces of leather and nailed it to the house to support it, until in a short time it had reached the height of 14 feet and a breadth of 8 feet, and bore immense crops of fine fruit.

Four years ago I secured the entire stock, having but little faith in it except as a novelty. I planted a few small roots to test it for field culture to see if by heading back I could make it grow in bush shape. Last season, being the third season, I had bushes as large as Fay currants set from 5 to 6 years. After picking and marketing my Fay currants I let these remain upon the bushes from 3 to 4 weeks to see how they would keep. When I picked them the party that handled them said they were the finest and largest currants he ever saw, the heavy foliage having protected them from the sun. Having become convinced that they were ahead of the Fay currant (which is hard for me to admit, my father being the originator and I doing all of the cultivating and propagating, my father having died before any of the plants were sold), I have decided to offer some of the plants for sale, believing they are the only currant that can be made to grow upon stakes or trellis the same as grape vines, thereby insuring a fine,

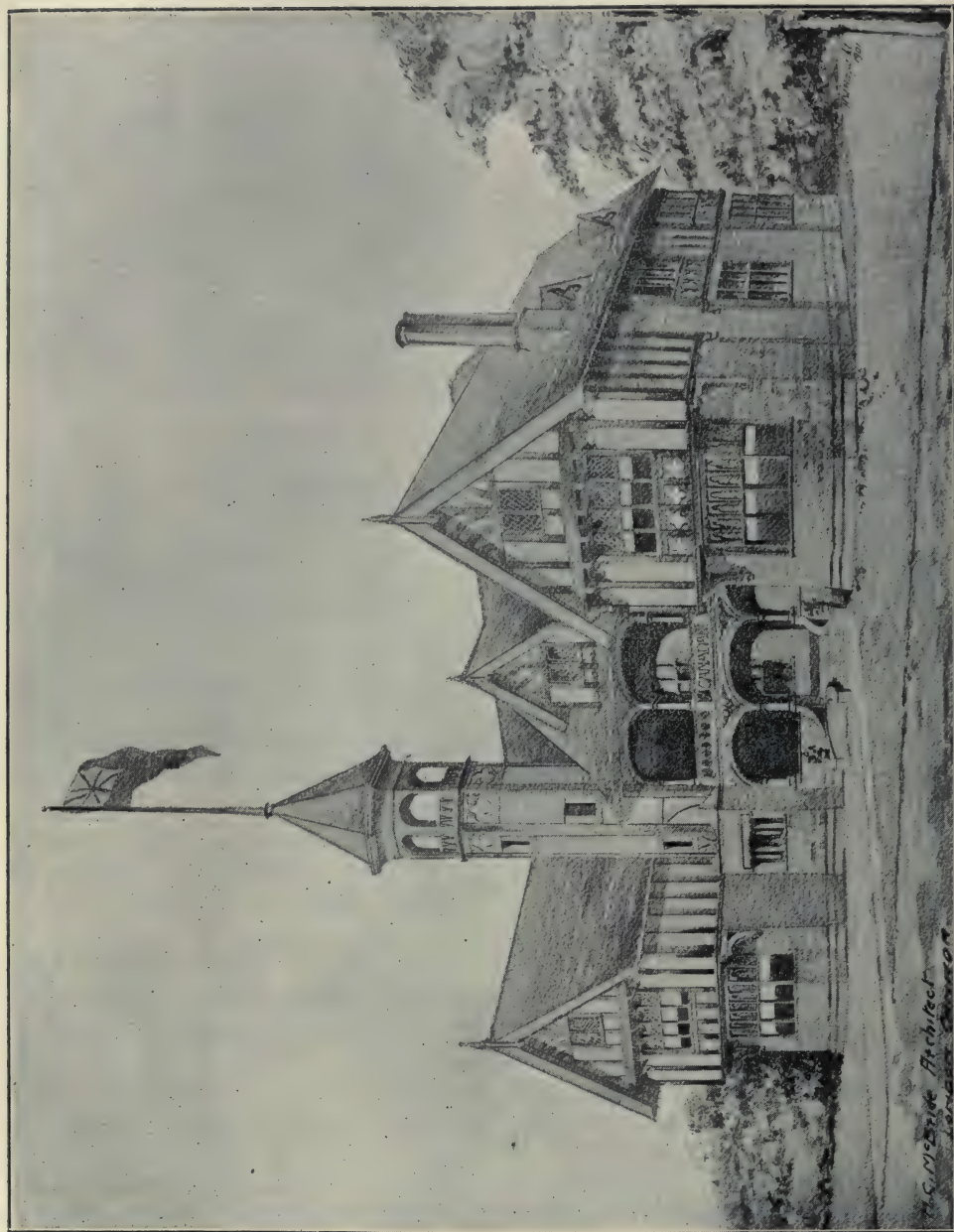


FIG. 2115. THE CANADIAN BUILDING.

heavy crop of fine currants to place upon the market, free from stains caused by heavy rains soiling the fruit with dirt. The fruit can now be produced high enough from the ground to prevent soiling; the plant being such a vigorous and stocky grower that when properly headed back will produce more currants per acre than any other currant grown, it having produced immense crops with me. The fruit is large, holding size well to the end of the stem, stem very long, often 4 to 5 inches, sufficient length of stem between fruit and bush to pick easily without bruising fruit; color very dark red; flavor said by good judges to be the best.

I could, but will not, give testimonials by the yard as is customary with nurserymen, as I only have a limited amount of plants for sale and will make the price so that any one, wishing to, can try one or $\frac{1}{2}$ dozen and be his own judge. If you want to grow it in bush form cut back heavily; if tree or vine let only one cane or sprout grow and train to stake, trellis or arbor and you will be surprised with the results. Think of one root producing 32 quarts of currants and making fine shade for arbor at the same time.

Another novelty in the New York State exhibit is the Pan-American Strawberry, which Mr. Cooper, the introducer, says is continuous bearer from June to November. The fruit shown is of medium size, fairly uniform, and of good color. Should this everbearing feature be constant, the berry may be of great value in the home garden.

A new raspberry is shown by Mr. Aikins of Attica, N. Y., which is a week earlier than the Cuthbert, and apparently quite productive.

That our complimentary remarks about the Ontario fruit exhibit are not flattery, but the simple acknowledgement of merit, is shown by the testimony of writers not personally interested in us. Thus Mr. Van Deman in Green's Fruit Grower says:—

Of the foreign countries Ontario has by far the best display in Horticultural Hall. In fact it is about the same as our own Northern States, climatically and otherwise, and her people are quite alive to the occasion, and have come forward with an apple display that rivals those from our own States very closely. They have good men at the head of it and have put into cold storage an apple supply to keep up the show for some months. They have had a few pears in addition to the large display of apples.

The Rural New Yorker says:—

The strawberry display is just now at its best and New York and Ontario make the best show, as we might reasonably expect, because of their nearness to Buffalo. Clyde is perhaps the most showy and prevalent variety on exhibition. Williams is the leading market strawberry of Ontario, and it certainly does remarkably well there. It is of a beautiful brilliant red color and a fair quality, but the larger berries have the fault of being somewhat furrowed on two sides, which is a slight objection.

THE CANADIAN PAVILION.—The State and National buildings at the Pan are certainly excellent. We show our readers West Virginia and Canada.

The construction of the Canada Building and the arrangement of its exhibits were authorized and arranged for by the Department of Agriculture of the Dominion. The building is located on the north of the Mall to the east of the Agricultural Building and near the great Stadium for athletic sports. The Grand Canal of the Exposition, with its avenue of poplar trees, runs along in front of it. It is convenient of access from the big live stock barns to the south of the Mall. The building resembles somewhat the British Building at the Chicago World's Fair of 1893, although it is by no means a copy of this building. Flowers and fruits are used to brighten the appearance of the building. The interior presents a most effective appearance, arranged as it is with the exhibits of Canada in a most attractive manner.

Although Canadian exhibits are seen in the various exhibit buildings in greater extent and variety, the notable productions of the Dominion have been arranged so as to give on the whole a most interesting presentation

of the products of this vast country. The cereal products of the Canadian farms are woven into figures and patterns suitable for the decoration of the walls of the building. Conspicuous in the display are the specimens of game animals and birds. The New Brunswick Legislature has loaned to the Inter-Colonial Railway for exhibition in this building some of the most interesting articles in its collection. One of the features of the decoration of the building upon the interior is a splendid buffalo. This stuffed buffalo is one of the largest specimens to be seen. There are also fine specimens of the musk ox. The bison shown was the giant of a herd in the Canadian Northwest Territory and was killed by Warburton Pike, an American writer, who had it stuffed and mounted and presented to the Dominion

Government. Other stuffed animals shown are moose, elk, caribou, beaver, lynx, wild cat, mink, seal, marten, fox, bear, wolf and different varieties of birds and fish.

There is a splendid moose head with antlers spreading 68 inches, loaned by Col. Charles E. Turner, U. S. Consul-General at Ottawa, who shot it 150 miles north of the Dominion capital. It is said to be the most perfect specimen in existence.

The Canada Building has apartments for visitors and for the officers of the Commission, and these are handsomely furnished throughout. Just off the main court is the office of Commissioner J. Hutchison and his Secretary, Wm. A. Burns, and here there is a register where Canadian visitors are requested to inscribe their names.

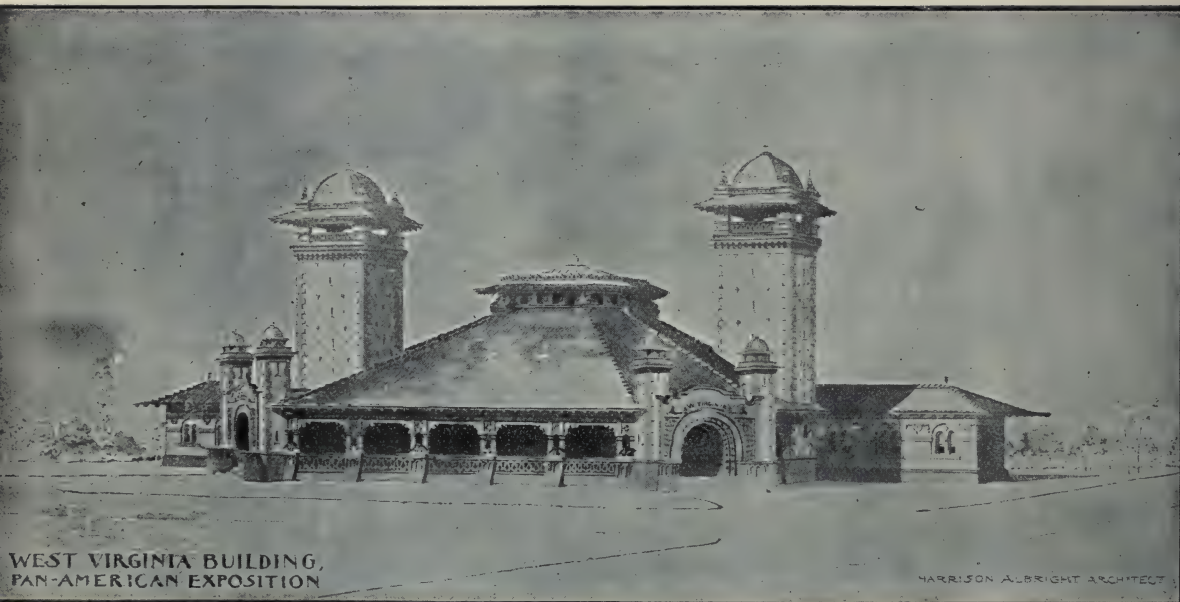


FIG. 2116. WEST VIRGINIA BUILDING.

UNCLE SAM TO EXPORT TENDER FRUITS.

FOR some years past certain efforts have been made by the Department of Agriculture at Ottawa, to encourage the export of tender fruits, with a certain degree of success. These efforts seem to be just now relaxed, in the hope that private enterprise will take up the work. While this is so with us, the United States Department of Agriculture is taking up the work where we left it off, and is pushing it to a successful issue. A recent issue of Cold Storage says :—

The plans of the department include the experimental shipments of fruit to various countries in Europe. Apples, pears, peaches, grapes and plums will make up these shipments. Heretofore a great many American apples have been sent to European markets, but as most of them were shipped with only the ordinary facilities the fruit was not in the best condition when it reached its destination, and only fair prices were obtained. It is now proposed to build up a permanent European market for American fruits, so as to furnish an outlet for the tremendous surplus of the American product which will come into bearing with the next few years.

Experiments will be made which will cover every stage of the marketing of the fruit from the time it is taken from the trees until it is sold to the retailers. Specially selected fruits will be chosen. They will be placed in packages prepared for the experiment, and sent to cold storage houses in this country. They will be looked after carefully until they reach the shipping ports of this country, where they will be placed on ships equipped with cold storage facilities, transported across the water in these chambers, and transferred to cold storage plants in Great Britain, France and Germany.

TO DEPEND ON REFRIGERATION.

While it is true American fruits sent to Europe will come in competition with the native product, it is declared that there are not many cold storage plants in Europe where fruits can be stored. Consequently the period within which the native European fruit is in marketable shape is of short duration, and it is almost impossible to secure home grown apples later than January. With refrigeration plants in this country, on the steamships and in Europe, it will be possible, it is believed by these experts, to place American fruits on the European markets after the home product is unsalable.

In other words, it is contended by these experts that, beginning with February, it will be possible to place American apples and other fruits in the European markets, where they will have almost a clear field for several months, or until another European crop is produced.

One of the most important matters in relation to this industry to be decided is to get the fruit to the seaboard in sound condition. Experiments will have to be made to determine the question as to whether special conditions on shipboard are required during all of the year; for instance, whether winter apples must be put in refrigerating chambers, or if they can be transported by maintaining a reasonably uniform temperature without undergoing refrigeration.

On the other hand it is likely the earlier maturing fruits will have to be subjected to the process of refrigeration on this side of the water in transit and in Europe. It is of the utmost importance to dealers that their shipments land in good order, as most of the consignments are sold on samples and if these are not in prime condition many losses result.

RELY ON CO-OPERATION.

Attention will be directed chiefly to the apple trade, as it is one which directly affects every part of the country. In these experiments special refrigerating cars will be required. The department will co-operate with those who have the interests of this industry at heart, as Congress has not provided enough funds with which to erect refrigerating plants and construct the cars that would be required in shipments.

It has been practically demonstrated that the plan which will be tried by the department is entirely feasible. During the Paris Exposition apples from twenty States were on exhibition and were in first-class condition one year after they had been picked, which is six months longer than apples have ever been kept before for commercial purposes. It was proved by these experiments

that it was possible to prolong the marketing season and deliver the fruits in sound condition with present facilities.

With the methods it is proposed to use it is believed a permanent market will be furnished not only for apples, but other American fruit.

Aside from the experiments which will be made with regard to creating a European market for fruits, the department will also make a number of experiments as to what the actual requirements are for keeping fruit in cold storage in this country. Aside from the refrigerating plants maintained by the packing houses there are 700 plants devoted to caring for fruits and vegetables. There is great diversity of opinion among dealers as to what are the requirements for keeping fruits in these places so as to obviate the great losses frequently sustained by these firms.

THE REFRIGERATOR CAR FOR HOME MARKETS.

THE time has arrived for a complete change in the methods of shipping tender fruits to our home markets, if we growers are to reap any profit. The enormous expenses, for baskets, express charges, commissions and so on, leave the grower altogether too little for his fruit. On one occasion, for example, the writer paid \$80.00 express charges on three hundred baskets of peaches to Montreal, which sold for \$111.00, leaving him only \$31.00 for the fruit! True these charges are now much reduced, but even yet they take a lion's share of the sales, and are altogether too much considering the reckless handling.

Hanrahan's new car, built by the Hon. John Dryden for experimental exports, demonstrates that we can now ship our most tender fruits in car lots at ordinary freight charges, and reach the markets with fruit in far better condition than by express; besides

this we have a cold storage on wheels in which the fruit can be held a few days for an advance in markets, should there be an over supply at the time of arrival. The following clipping from the Ottawa Evening Journal, is a proof of our statements:—

Strawberries, which have hitherto been considered too perishable to ship from Grimsby, Ont., to Ottawa were successfully brought to the Capital yesterday in a refrigerator car remodelled by Mr. J. F. Hanrahan of Ottawa. The berries were shipped on Monday and they arrived in the city yesterday absolutely dry, all the moisture having been carried off by Mr. Hanrahan's automatic system.

The success of this shipment is said to have solved the problem of shipping perishable fruits by a system of refrigeration which may be relied upon. The refrigerator car was remodelled by Mr. J. F. Hanrahan for the Ontario government for the purpose of transporting perishable fruits. It reached Ottawa loaded with berries consigned to the Ottawa Fruit Exchange. Mr. G. W. Hunt who was feeling rather uncomfortable in case any mishap should take place was more than delighted, and when a Journal reporter visited him at the car yesterday it was evident that everything was right; that could be easily told by Mr. Hunt's face.

When the car was opened and examined by Mr. Hanrahan, Ald. Bayly, a Journal reporter and several others, everything was in prime condition. Berries that were reported soft when loaded were absolutely dry, the moisture had been all absorbed by Mr. Hanrahan's automatic system. After the car was partly unloaded Mr. Hanrahan took the party into the car with a lamp. The doors were closed and Mr. Hanrahan demonstrated the different currents of air which he employed to eliminate odors, moisture and gases from the fruits.

Mr. Hunt, who has had a large experience in handling berries in refrigerator cars, said it was the first car of berries that he ever opened without finding a very marked odor of decayed berries. As soon as the car door was opened yesterday, the car, to use Mr. Hunt's own expression, was "as sweet as a nut." He also stated the amount of money saved to the growers by using this car for the transportation of perishable fruit from the

Niagara district would amount to about forty to fifty thousand dollars annually; and to his mind this was the only refrigerator car to-day in existence in which perishable fruits could be held any length of time for market without moulding. This is due to the fact that the moisture is all absorbed from the fruit and carried off out of the car.

The ice chamber is in the centre of the car, and the fruit is so placed on the car that the air freely circulates, and the warm currents enter the top of the ice chamber, while the cool air goes from the bottom of the ice chamber through the car. Not only were the berries dry and in good condition, but every part of the car was perfectly dry.

Before this car was loaded at Grimsby some of the shippers protested against its use, but the reports about the condition of the fruit have convinced the majority of the shippers that the Hanrahan car is a success.

SOME USES OF THE LEMON.

WOMEN, particularly, would find a more general use of lemons as simple remedies where ordinarily doctors' medicines are employed, efficacious and economical.

One of the most pleasing baths is made by slicing three or four lemons into the water, which should be drawn half an hour before using so that the juice of the fruit may have a chance to permeate it. The sense of freshness it gives, and the suppleness and smoothness it imparts to the skin are very luxurious. In the West Indies often the lemon is used instead of soap, and when the natives wash their hands they squeeze the juice over them and rub them briskly in water until they are clean.

The lemon is invaluable in its effect on the

complexion. A few drops in the water in which the face is washed removes all greasiness and leaves the skin fresh and velvety. A little lemon juice rubbed on the cheeks before going to bed and allowed to dry there will remove freckles and whiten the skin, besides giving a delightful smoothness, and if the treatment is persisted in, eventually it will carry off all unsightly blemishes that are not caused by internal trouble.

Lemons are very useful in the care of the teeth. A few drops squeezed into a glass of water for rinsing the mouth make a tonic for the gums and render them firm.

In washing the hair, if a lemon is used, it will cleanse the scalp and give a soft fluffiness to the hair that women like.

FLOWER GARDENS OF THE SEA.—The sea has its flower gardens, but the blooms are not on plants as they are on the land. It is the animals of the sea that make the gardens, the corals of the tropical waters, particularly, making a display of floral beauty that fairly rivals the gorgeous coloring and delicate grace presented by land flowers. So closely

do they resemble plant blooms that it is hard to believe that they are wholly animal in organization. Dr. Blackford says that among the coral gardens there are fishes of curious forms and flashing colors darting about, just as the birds and butterflies dart about plant gardens on land.—*Chicago Chronicle*.



HINTS FOR FRUIT GROWERS—III.

THE FAILURE of cherries and apples this season is most unusual and must mean higher prices for other fruits. In such a case, the revenue for the whole season is often better than in seasons of abundance, when prices are so low that little if any profit remains to the grower.

PRUNING IN SUMMER is little thought of by Canadian fruit-growers, and yet if only more attention were given it, much waste of vigor might be saved to the tree. In the vineyard, more especially, this hint is worthy of attention; for so much growth of vine is allowed to go to waste, in forming useless wood. Iggulden, in *Journal of Horticulture*, says, "Not only ought the thinning out, or the reduction of the shoots to one or, at most, to two at each spur, in the case of the older canes, and to one at each joint of strong, young canes, to be done early, but the topping of laterals should commence directly this can be done with the finger and thumb."

Of course the case of English grapes is very different from that of Canadian, for their value is much greater, and in many cases they are grown for gentlemen who have much money to spend and plenty of workmen.

PYRAMIDAL TRAINING OF THE PEAR TREE.—Mr. W. B. Waite, of the Department of Agriculture, writes on pear culture in the *American Gardening* and points out the three ideal forms of growing the pear tree, viz., the pyramidal, the vase, and the natural. The first we always adopt for dwarfs, but the third we usually adopt for standards. The following is Mr. Waite's description of the pruning in pyramidal form:

The pyramidal form of the tree is a much more simple and more easy form in which to train most varieties of pears, because it conforms essentially to the natural tendency of the trees. It is usually best to head the trees to a straight cane in planting them out, as previously described, though this is not necessary if the head has been formed in the nursery at the point desired by the orchardist. This is very rarely the case, however, as most nursery trees are headed too high. If the tree is headed at the proper height in the nursery, it will simply be necessary to cut the leader back to about 6 inches and to trim three or four of the secondary branches to about 3 inches. The tree may then be allowed to go during the season with very little pruning. It may be necessary to go

over the trees after 6 or 8 inches of growth has been made and pinch off an occasional shoot which has not developed in conformity with the pyramidal form. Sometimes two leaders will form nearly equal in size. One of these should be pinched back and the other allowed to remain.

In the winter pruning the central leader is first selected and cut back to the height at which the next whorl of limbs is desired. In the dwarf pear this should be about 12 inches; in Bartlett's and other standards about 14 to 16 inches; in strong growing Orientals, like the Kieffer and Le Conte, 18 to 20 or even 24 inches may be proper. The lower whorl of main limbs is then examined and about three or four branches are selected. These are cut back to a length of about 12 to 18 inches, or about two-thirds the length of the leader. All other branches or twigs interfering with this main framework are then removed. In the next year's pruning, at the conclusion of two years' growth, the central leader is again selected and cut off at the same length as in the previous year, the 1-year-old whorl of branches at its base is examined and pruned in about the same manner as the previous year, leaving three or four twigs to form main limbs, and the lower whorl, which now has two years' growth on each branch, is treated in much the same way that the pyramidal top has been treated, namely, the leader for each branch is selected and headed back, leaving it about two-thirds as long as the leader at the top of the tree. At the base of the leader on the 2-year wood about two or three secondary branches are selected and headed back, so as to subordinate them to the leader, and the other twigs on these branches are cut off. All of these main

branches are selected with reference to their forming the framework of the tree exactly as described in pruning for the vase form of tree. Temporary fruiting branches may be left in same manner also as described in that form. Water sprouts and limbs in undesirable places are of course removed.

The third-year pruning of the pyramidal form proceeds on the same line, the upper part of the tree being pruned exactly as in the previous years, the only addition being that one more joint is added to each main branch and one more of lateral branches has to receive attention each year. The pyramidal form of tree does not change, and the general plan of pruning continues the same through its entire life. The only thing to avoid in this type of tree is the tendency to become too thick and bushy in the repeated heading back. To avoid this the pruner should be prepared to thin out unnecessary branches as well as to cut back. Fruit spurs will begin to form on the branches after the third year. These may be left temporarily and afterwards cut away. It is undesirable even in the temporary form to allow young branches to become thickly grown with lateral fruit spurs, for the reason that such spurs are not nearly so well nourished as those on smaller branches carrying vegetative shoots, and furthermore such branches are a great deal more liable to destruction by pear blight. These numerous lateral fruit spurs, when in bloom, afford many opportunities for blossom-blight infection, and when such a branch is attacked by blossom blight the disease has only a very short distance to run from the fruit spur into the main limb, which it can girdle with a minimum amount of diffusion.

HOUSE CULTURE OF THE FOREIGN GRAPE.—The time will probably come, in America, when the European grape will again be a valuable commercial fruit, as it was at one

time, the fruit selling readily at \$1.50 a pound. The cultivation went down for several reasons, among them the fear of competition with the out-door grown Euro-

pean grapes from California, the injury to the roots by the phylloxera, and the difficulty of getting the intelligent labor to manage the vines properly. It is clear, however, that no more fear of competition with the California product need be feared than with the Spanish grapes that come in barrels of cork dust from the Old World. These are very good in their way, and will usually bring remunerative returns, though the figures be small. There is no comparison between these in quality as compared with those grown under glass, by one who knows his business. This has been abundantly proved in England. The Spanish

grapes come to England and are sold by auction by the 10,000 barrels at a time, and bring no more than sixpence or ninepence a pound in the famous Covent Garden Market. While the home-grown Muscats and Black Hamburgs bring comparatively enormous prices.

In our country, it was once thought to be absurd to try to raise tomatoes at a profit under glass in winter, on account of the shipments from Florida and the West India Islands. But it has been found a profitable business of late years, by reason of the superior quality of the home-grown article.—*Meehans' Monthly*.

THE CROTHERS PEACH.



FIG. 2117.

THE old saying that "there is always room up higher" is as true in pomology as in the professions, and there is a peach called Crothers, now almost unknown, that is worthy of a chance to show its merit to a place among the best peaches of the country. When I lived in Kansas I had in my orchards about 150 of the best named varieties of the peach then known, but I saw a new one at a local fair that, for its season, surpassed any that I knew. I found it to be a seedling growing on the farm of a Mr. Crothers, near Neosho Falls, Kan., and his reports of the good habits of

the tree, together with my opinion of the specimens, induced me to get buds and put it in my trial orchard. I also sent a few to Prof. T. V. Munson, of Denison, Texas. He has been so much pleased with the variety, that he mentions it in his catalogue of rarely good peaches, as without an equal of its color and season combined. It has also been fruiting at the Experiment Station at South Haven, Mich., for several years, where it is much liked. The tree is a very abundant and regular bearer of strong growth and somewhat drooping form. The fruit is of medium size, nearly round in shape, not pointed, and has a slight suture on one side; color, creamy white, with a bright red cheek, making a handsome appearance; flesh, creamy white, red at pit, very juicy, melting; flavor, rich yet mild, vinous and very pleasant; seed, rather large, roundish oval, free from flesh; season, the last of September and early October in southern Michigan. It meets the want of a late, red and white freestone of high quality; entirely superseding Ward's Late, which has long been about the only peach of that character. All lovers of a good peach should get buds or trees and test the Crothers.

H. E. VAN DEMAN IN *R. N. Y.*

ORCHARDING—II.

HANDLING THE FRUIT.

THE fruit tree is an investment ; the fruit should prove an annual dividend.—It is within reasonable limits to say that by the time a well cared for Baldwin apple tree reaches bearing age it may represent an investment of labor and capital amounting to ten or fifteen dollars. In most parts of New York State this investment is fairly sure and will yield large dividends under good management. The dividend may yet be lost if the owner neglects

go on more rapidly if the fruit remains on the tree than if it has been picked and stored in a cool place. If exposed to the sun or stored in a warm room it continues to ripen more or less rapidly, depending on the warmth of the room. Apples that are exposed to the sun for some time after picking or are allowed to hang on the trees late in the season may be somewhat improved in flavor and appearance, but their season of keeping is undoubtedly shortened.



FIG. 2118. A BUSY DAY AMONG THE BALDWINS.

to exercise intelligence and judgment in picking and handling the fruit. The method of handling the fruit crop is of vital importance. It is the climax of years of labor ; yet just here many fruit growers fail.

The keeping qualities of the fruit are influenced by the time of picking.—An apple may be mature when the seeds are colored but yet not ripe from the eater's standpoint. After it is mature the ripening process will

The ripening and decay of fruits follow each other without any clearly defined dividing line.—Fruits develop, mature, ripen and decay in shorter or longer period according to their characteristics and the manner in which they have been handled and stored. The whole process of ripening under normal conditions is regularly continuous and is not divided by clearly marked intervals. An apple loses crispness, becomes mellow, the

cells break down and the apple is rotten. While these changes are due to different agents as chemical action and growth of microbes, the process is quite gradual. A peach is picked when still hard, but in a temperature of 50 degrees F. or above, soon becomes soft and in a few days is reduced to a mushy mass of pulp. If picked when ripe and beginning to soften, the life of the fruit is therefore relatively shorter than if picked when just mature. In winter fruits the ripening (mellowing) process goes on slower than in the summer varieties.

point, germs of fermentation or decay will not develop and the fruit will remain in an inactive condition; in other words, the ripening process which precedes the decaying process does not go on. On this principle is founded the practice of placing fruits in cold storage.

All farmers and fruit growers cannot afford to erect elaborate storing houses, but it will pay most fruit growers to put up storage houses in which their perishable fruits may be safely stored at times when the market presents unfavorable selling



FIG. 2119. SORTING AND PACKING IN THE ORCHARD.

The decay of fruits is due to certain ferments, chemical agents and micro-organisms which develop under favorable conditions of temperature.—The ordinary keeping season of fruit may be much prolonged by storing it in a compartment in which a low temperature may be preserved. The germs which may bring about the decay of fruits like those which change grape juice from the sweet stage to the alcoholic, can only develop when the temperature is considerably above freezing. It follows, therefore, that if fruit is stored in a chamber where the temperature can be kept near the freezing

opportunities. When fruit growers are entirely without store houses they are practically at the mercy of the buyer and the fluctuating market prices. It was due to this fact that much of the 1900 apple crop of Western New York was sold at low if not unremunerative rates.

Bruises shorten the keeping season of fruit.—Fruit pickers seldom realize how much the normal keeping season of a fruit is shortened by bruises due to careless, indifferent handling. When the flesh of an apple is bruised, the cells are crushed, the juices are liberated and ferments giving rise to

decay develop. The life of an apple, peach or pear depends very much on the care used in picking it. When fruit is shaken from the tree or thrown carelessly into a hard-bottomed or rough-sided basket, dumped into a wagon box, or transported in sacks like potatoes, as they were in former days, the keeping season is shortened and the percentage of loss on stored fruit is very great. Mature fruit should be handled as carefully as thin-shelled eggs. The picker can soon

may be placed across the mouth making a triangular opening. A broad leather or canvas web strap is then connected to one of the lower corners of the sack. An iron ring is attached to the mouth to which is snapped the strap. The sack is suspended from the picker's shoulder by means of the strap. This sort of device allows the picker to use both hands. Having the sack easily detachable the picker can gently empty the contents into the barrel without injury to



FIG. 2120. GRADING AT STOREHOUSE. NOTE PADDED BASKETS.

train himself to handle fruit gently if he takes the slightest interest in his work.

Suitable receptacles for picking the fruit are important.—There are two kinds of picking receptacles in common use among fruit growers. One is a swing-handled basket which allows of the contents being gently emptied into the barrel. This is a strong splint basket and should be padded or lined with burlap on the inside to prevent bruising the fruit. The second type of picking receptacle is a grain sack into the mouth of which is fixed a hoop ; or a stout bent stick

the fruit. Early apples and all soft fruits, such as pears, plums and peaches, should be picked in baskets and taken directly to the packing room for sorting.

Grading is absolutely essential.—The grain merchant cannot afford to place ungraded wheat on the market, neither can the fruit grower afford to mix No. 2 with No. 1 apples in the same package. It does not pay the fruit grower to place on the market mixed grades of apples. Whether he is shipping apples or strawberries, the same principle applies. The price is fixed by the smallest

fruit in the package rather than by the largest. An even grade, whether of small, medium or large size, is more attractive to the purchaser than one containing many sizes. The grading of the fruit is an important piece of work. Very few persons can do it satisfactorily. It is not mechanical work but work that requires quick judgment, a keen eye and a conscience. Fruit can best be graded in the packing house. This is particularly true of the tender types of fruits. In apple orchards where the yield

The best goods are done up in small packages.—The purchaser is usually willing to pay for an attractive package and the selling qualities of the fruit are greatly increased thereby. As a general principle, the finer the quality of fruit the smaller should be the package. Staple articles and standard varieties are shipped in bulk, but “fine goods are done up in small packages.” The barrel is the standard package for the commercial varieties of apples thus far. The finer, earlier and more tender variety of apples



FIG. 2121. GRADING TABLE WITH STOREHOUSE IN BACKGROUND.

is heavy the work may be done on movable grading tables in the orchard. Some packers pour the picked apples on the ground and sort from thence directly into the barrels. The best work can be done where the best facilities are offered. Make-shift methods usually result in unsatisfactory and uncertain grades. A tempting display of produce attracts buyers and develops a market. The market is best maintained by practising strictly honest methods. Fruit in the center of the package should be as good as that on the surface.

are often shipped with greater profit in baskets and attractive small boxes than in barrels; but only the finest fruit and that which is most carefully graded should be handled in this way.

Changes of temperature cause moisture and hasten decay.—If the fruit after packing is brought from a warm temperature to a cold one or from a cold temperature to a warm one, moisture is condensed on the surface. This is what is called “sweating” and may readily be observed when apples are exposed to sudden and marked changes of tempera-



FIG. 2122. THE BOX AND BARREL PACKAGE.

ture. Apples piled on the ground will develop heat to some degree which naturally encourages condensation of moisture. It is desirable, therefore, that if fruit is to go into cold storage it should be cooled gradually. In taking it from the low temperature of the storage chamber to a warm room the change should also be a gradual one. If this precaution is not taken the fruit becomes wet on the surface and presents favorable opportunities for the development of germs causing decay.

The fruit grower frequently finds it desirable to store his fruit after picking until more favorable market conditions occur; but only sound clean fruit should be packed. He often fails to appreciate the fact that various kinds of vegetable parasites (fungi) are as likely to continue growth on the fruit in ordinary storage as on the fruit before picking. The greatest care should be exercised in barrelling this fruit, to see that it is free from scab, bitter rot, fly-speck fungus or any other vegetable parasite. Packers are often surprised on opening the barrels in midwinter to find that there is considerable waste in fruit which appeared moderately fair and clean when

packed in the fall. This impresses the lesson that at the first packing every blemished specimen should be rejected. It is economy to do this in the long run. Not only is it wise to reject specimens affected by scabs and spots but also those infested by insects, because the larvæ of codling moths for instance, may continue the destruction of barrelled fruit where temperature is not very low.

Early fruits should be picked successively.—Pears and apples should not be pulled from the tree. This way of pulling often separates the stem from the fruit and injures the appearance and keeping qualities. Apples and pears, when ready for picking, may be separated from the spurs, to which they are attached, by turning the fruit upwards. This knack is quickly mastered by deft-handed pickers. As a rule pears ripen more satisfactorily in the store house than on the tree. Bartletts may be picked before reaching maturity, and if stored in a cool darkened room will become more rich and buttery than if left on the tree. Loss of pears from rotting at the core may be obviated in large measure by early picking. Sometimes it pays to remove the fruit of certain varieties in two or three successive pickings. This is particularly true of early varieties of apples, pears and peaches. A prominent apple grower in this State makes a specialty of Oldenberg (Duchess) apples. In order

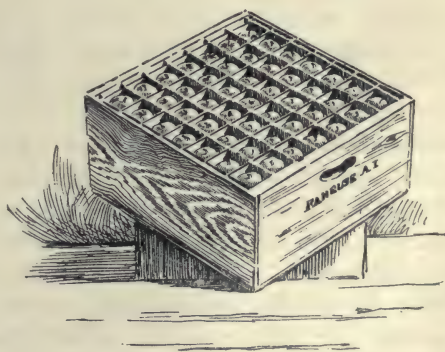


FIG. 2123. COMPARTMENT BOX.

to get the most out of the crop the trees are thinned of their largest fruits as soon as salable size is reached. The operation is repeated when another picking is ready. In this way finer fruit is secured and larger returns obtained for the entire crop than would be possible if the fruit was all removed at one picking.

Handle soft fruits very carefully.—Plums and cherries are picked with stems on. The picker should grasp the stem and take care not to separate it from the fruit as this encourages rot. In picking peaches the

ural bloom of the fruit which adds so much to its beauty.

A fruit house should be so constructed as to preserve an even temperature.—Storage houses are of two types: First, those which modify but do not regulate extremes of temperature, and second, those which furnish definite low temperatures. Houses of the first class are generally within the means of the commercial fruit grower. Those of the second belong to the equipment of the fruit dealer. The ordinary storage house is probably a frame building pro-



FIG. 2124. THE DEPOT PACKING HOUSE.

fruit should be seized firmly with ball of thumb and inside (not ends) of fingers and detached by turning it to one side. Strawberries should be without white tips and fully colored when picked. The stem is pinched off by the finger and thumb. Raspberries, blackberries and dewberries are of course picked without hulls, although when a fancy trade is catered to, red raspberries are sometimes picked with hulls on. In picking currants the entire cluster should be removed. In every case the picker should use his best endeavor to preserve the nat-

vided with a well drained cellar and having perfectly insulated walls and double doors. Insulation is secured by providing two or more air spaces in the walls. These air spaces should be separated by paper-covered partitions. Comparatively low temperatures in these buildings may be secured in the fall by keeping them tightly closed during the warm part of the day and ventilating only on cool nights. Fruit houses of this character will also keep out frost so that the grower may hold his fruit till a favorable opportunity for selling occurs. Dry air

prevents the growth of fungi but causes the fruit to shrivel; a moist atmosphere on the other hand preserves the plumpness of the fruit but encourages the development of parasitic plants. Extremes should be avoided.

The principal thoughts for the fruit grower

to keep in mind in handling his fruit are that it is a perishable article, that its keeping season may be lengthened by careful handling and by low even temperature, and that profits may be increased by placing it on the market in an attractive form.—*John Craig in Cornell Reading-Course.*

SUBJUGATING THE APPLE MAGGOT.

THE parent of this little maggot somewhat resembles the common housefly in form, but the abdomen is more pointed, and it is only one-fifth of an inch in length, with a wing expansion of $\frac{3}{8}$ inch. The wings are glossy white and prettily marked with four blackish bands, which have a fancied resemblance to the letters IF, and the first four segments of the abdomen are broadly banded with white.

These flies appear about July 1 in Maine, and correspondingly earlier further south,



FIG. 2125. APPLE MAGGOT.

and continue to emerge all summer, being found flying until late in September or until the early frosts check them. The females at once commence depositing eggs, which are placed vertically in the pulp, mostly upon the cheeks of the apple, especially on the shaded side. It takes the fly about half a minute to deposit an egg, and each one is capable of laying from 300 to 400, 12 or 15 often being placed in a single apple. In four or five days the minute larvae emerge from the eggs

and at once commence to tunnel in the pulp. By means of a vertical motion of the head they rasp the pulp with the small black hooks or mouth parts, and in less than a minute can tunnel their own length. The maggots become full grown in five or six



FIG. 2126. APPLE MAGGOT.

weeks and then usually go into the soil to the depth of an inch or so, where they pupate. The pupae remain dormant over winter and the flies emerge from them the following summer.

The apple maggot seems to have a decided preference for early apples and those which are sweet or sub-acid. Orchards on sandy soil and in sheltered places with a southern exposure seem to be worst affected, this doubtless being due to the favorable conditions furnished for the development of the pupae.

Owing to the nature of the injury, spraying with poisons is absolutely valueless for this pest. However, much may be done to prevent future injury, as the adult flies are sluggish and usually remain in the orchard where they developed, so that if an orchard is cleaned of them a fruit grower need have no apprehension of a serious invasion from neighboring orchards for some time. Cultivation furnishes favorable conditions for the pupae, but as they never go to over an inch

in depth, good deep spading or deep plowing in early spring will destroy most of them. Though the conditions for the development of such maggots as occur in apples gathered for market are not favorable and would rarely enable them to again get back to an orchard, still it would be well to see that all refuse from infested fruit, apple pomace, waste, etc., is destroyed, and that bins, barrels or boxes which have contained infested fruit and in which the maggots may have pupated, be thoroughly cleaned.

The best means of checking the pest, however, is by carefully destroying all wind-falls. To leave them on the ground gives

the best possible condition for the pest, and every maggot which matures means 100 next year. This should be especially attended to for the early varieties, and, though considerable work, it will be found to be labor well spent to send boys through the orchard every couple of days from August 1 to October 15 to gather the wind-falls, which should be destroyed or consumed in such a way as to kill the maggots. Or, where desirable, sheep or hogs could be allowed the range of the orchard and will usually keep it well cleaned.—*American Agriculturist*.

STRAWBERRY NOTES.

Michigan Bulletin 189 gives a good report of old and new varieties. Among others we clip the following :

CLYDE—Perfect flower. Plants are vigorous and hardy, a little light in color. A very profitable sort on soils not easily affected by drought. Berries are light red, color extending through the berry. Are but moderately firm. Excellent to fertilize pistillate varieties.

(ED.—This berry loaded enormously with us at Maplehurst this season, but suddenly failed in the dry weather.)

MARSHALL.—This variety is a strong grower and quite prolific. Berries, large, dark red and uniform. Quality and texture are very good. Except on strong soil the foliage is slightly subject to blight. This is one of the best large berries upon moist, rich soils.

(ED.—The finest strawberry shown at the Pan in the New York State Exhibit was this Marshall.)

MORGAN FAVORITE.—Perfect flower. Plants are strong and have very good foliage. Fruit ranks high in size, form and color. The flesh is bright, juicy and of high quality and firmness. The productiveness

and uniformity of this variety make it valuable either for home or market use.

NICK OHMER.—Perfect flower. This variety was in a poor location and for this reason lacked somewhat in vigor and productiveness. Berries are large, of good form and of fine appearance, which, with their high quality and firm texture, should make it a valuable variety.

SAMPLE.—Imperfect flower. Plants are strong, vigorous growers and productive; have stout fruit stalks and large, healthy leaves. Berries are of large size, very regular in form, bright dark crimson in color and of high quality and texture. This variety has proved itself valuable during the two seasons grown here. Well worthy of trial.

WILLIAM BELT.—Plants are good growers and productive. Berries are large and of good form; quality and texture are high; color is bright red. This variety was in a poor location which must be considered in connection with the table. A valuable variety.

Of the newer sorts that fruited in 1900, H. and H., Echo., Emma, Ganage, Gladstone, Stouffer, and Johnson Early are most promising.

APPLE CANCKER.



AMERICAN APPLE CANCKER (*Sphaeropsis malorum*).—The popular edition of Bulletin 185, Geneva, New York, is devoted to this subject.

The disease has become very prevalent in Nova Scotia and not infrequent in Ontario, where it has been attributed to sun-scald, frost, etc., when in fact it is a fungus growth. It is therefore in place to give the following extract :

“To cause the destruction of cankers which girdle the limbs, the germs of the disease must get through the tough outer layer of the bark into the growing layer beneath, the cambium. An injury to the bark of some sort is necessary to this entrance; for the fungous threads can not penetrate the unbroken bark. Sun-scald, as well as mechanical abrasions, may cause such injuries. The bark is killed by the sun and frost, and cracks or peels, when the germ finds ready entrance and rapidly extends the injured area in canker form.

Sunscald or sunburn is a common trouble in this state, probably more common than generally supposed, especially on tender varieties. The long areas of reddish bark on the south

and southwest sides of limbs and young trunks are inconspicuous when they first are scalded and so escape notice ; but they are all too common, and may be-

come the seat of serious harm to the trees. Trees of tender varieties should be protected from the direct rays of the sun by training them to low, thick heads which shade both trunks and branches. * Additional protection may be given by a coat of whitewash upon the trunks ; which helps to prevent absorption of the sun's rays and also exerts a favorable influence upon the bark itself. A good mixture is :

Lime (unslaked).....	30 lbs.
Tallow	4 “
Salt	5 “

Dilute with water enough to make i spray easily.

Treatment of canker.—In addition to the protection from sunscald, thorough spraying



FIG. 2127.
AMERICAN APPLE
CANKER.



FIG. 2128. EUROPEAN APPLE CANCKER.


with bordeaux mixture and care to prevent accidental injuries make up the preventative treatment. The larger diseased limbs may be saved from complete loss by cutting them off back of the cankered area and inserting cions of the same variety.

EUROPEAN CANKER (*not common*).—Only a few specimens showing effects of this trouble have been found in America, some coming from Nova Scotia and a few from New

York State. The cankers are unlike those of the *Sphaeropsis* and are caused by a different fungus, *Nectria ditissima*. They are well represented by the figures on preceding page, one showing a recent infection and the other an old canker.

Though rare in America, the trouble should be watched for by apple growers, as it is a serious pest in English orchards.

FRUIT NOTES.

 HERE will not be a good half crop of apples in this district this season, although our own orchard will be more than that. There are very few Baldwins or Snows; Greenings are $\frac{1}{2}$ a crop, Spys $\frac{3}{4}$ or better, Canadian Red, Golden Point, Haas, Boston Star, Duchess, Minkles, Grime's Golden, and some of the pippins are fairly well loaded. Of the stock planted in 1897, Shackleford, Gideon, Ben Davis, No. 261 Russian, Yellow Transparent, Wealthy, Red Bietigheimer, and some others have all the fruit on they should have; Ontario is loaded, and I have thinned some of the trees by cutting off the fruit where too much is set. In pears, Kieffer takes the lead as usual; they will require thinning to get good samples; there is a fair crop of the following; Clapp's Favorite, Clairgeau, Louise, while Bartlett, Lawrence, the President Druard are very lightly loaded. In the planting of 1897 and 1898, several varieties, such as Winter Nelis, Doyenne, d'Ete, Druard, Kieffer, Duchess Precocoe, Howell, Wilder, Rutter, Koonce, Krull, and many others have a few samples of clean nice fruit. So far this season we have had no blight although many were slow coming out in leaf. In plums it is needless to enumerate, as almost every plum of bearing age is loaded, having had no crop of plums for the last two years. The curculio got pretty well

starved out and very few put in an appearance during the early part of the season. Soon after the plums began to grow, we had several days of rainy and dark weather, consequently the plums began to rot on the trees, but as soon as I observed it I sprayed them with whale oil soap, 2 lbs. to a gallon of warm water, and the rot seemed to be cured at once, so that I believe there will be the largest plum crops this section ever had. Cherries promised well at first but the hot weather of the past weeks is ripening them prematurely. They will not be as large samples as usual. We generally have very fine cherries in this district, of superior quality, especially the Morello and Duke class. Strawberries were good while they lasted but their season was short; raspberries promise well, both black and red, and the growth of such kinds as Cumberland, Shaffer and Columbia are immense. Grapes promise well but set rather late. Blackberries and gooseberries are good but red and white currants only medium. We have been trying for some years to grow apricots and peaches, and at last we are to be rewarded, as most apricots are loaded and a few peaches are showing up; the trees are healthy, no curl leaf to speak of where whale oil soap was used. I think all our trees, both fruit and ornamental, have made more growth in

height and thickness of wood than any season before in twenty years. A great many caterpillar's nests showed up early in the season, but vigorous measures were adopted by nearly all fruit men, so that not many escaped to carry on their work of devastation. The plum tree aphid is in myriads in some localities, and the green apple aphid is very numerous in some places, but where spraying had been attended to with bordeaux mixture (and I added whale oil soap with it) the trees are clean and thrifty.

I am keeping notes from time to time and will have a full report after the crop is harvested. Nearly all our young trees are making vigorous growth. I am giving 9 acres of our growing orchard clean cultivation, the balance is in hoe crop, all roots, to see which succeeds the best. I have also tried three kinds of fertilizers, besides wood ashes and barn yard manure, but so far the manure has produced the greatest growth.

R. L. HUGGARD.

Whitby.

THINNING THE PEAR.

MR. Waite, in writing up Pear Culture, emphasizes the importance of thinning the fruit. We, at Maplehurst, have never yet satisfied ourselves that this work pays us nearly as well with pears and apples as with peaches, though there is no doubt of very considerable advantage, for otherwise the tree would waste a great deal of strength in maturing useless specimens. Mr. Waite writes:

No discussion of pear culture would be complete without including this important operation, and as it belongs on theoretical grounds with pruning, we may consider it here. It is a great mistake to allow pear trees to overbear. When the fruit is about an inch in diameter the trees should be gone over carefully and all the surplus pears, over and above what the tree can mature properly, picked off. Each branch should be examined, and, with the size of the mature fruit in mind, the number reduced to the proper

amount for that size of branch. All imperfect, wormy or distorted specimens should of course be picked off first, and only those which are expected to make fancy fruit left behind. Unfortunately, no general rule can be given to guide in thinning pears. The rule of one fruit to 6 inches, which commonly guides the peach grower in thinning peaches, cannot be definitely applied to pears. Experience is the only guide, and the grower may expect to allow a few trees to overbear before he learns the lesson of just how much to thin. Thinning not only improves the quality of the fruit of the current season, but it places the tree in better shape to bear the next year. As a rule, greater profits are secured by regular annual crops than by heavy crops during occasional years, for it commonly happens that such seasons are the very ones when fruit is plentiful and cheap and the profit in handling it very small.

THE FRUIT INSPECTION ACT will not, it seems, remain a dead letter, for Mr. W. A. McKinnon, formerly of Grimsby Ont., now of the Department of Agriculture, Ottawa, has been entrusted with its enforcement. He is now proposing plans to be

submitted to the Minister of Agriculture for approval. It is probable that inspectors will be appointed at all the important fruit centres, as well as travelling inspectors. It is hoped that this will put an end to the fraudulent packing of apples, peaches and pears.



TIMELY TOPICS FOR THE AMATEUR—XVIII.

ROUTINE work such as watering, staking and tying, will be the principal features demanding attention on the lawn or in the garden during August. The first mentioned duty is one that presents itself in a very serious aspect sometimes to those who have even a small collection of pot plants, especially where there is not an abundance of water near at hand.

It may also happen perhaps that those, who wish to have a few days' vacation away from home, are in a quandary what to do with their collection of pot plants whilst they are away. A word or two on the latter subject may perhaps be in season, and useful to readers of the Journal.

There is no better plan for economising both the supply of water and the care required by pot plants in summer than by plunging the pots wholly or partially in soil, coal ashes or sand.

The word "plunging" being a professional term it may perhaps not be understood by some of our readers. It consists merely in burying the pot wholly or partially in one or other of the materials before mentioned. Many pot plants that make their growth

in summer ready for winter flowering purposes, succeed best plunged out of doors in summer. Geraniums, stevias, genistas, violets, azaleas, etc., are usually treated in this way early in July, as the cold damp earth, or similar material around the outside of the pot, excludes the hot dry air and prevents rapid evaporation of the moisture around the roots of the plants, thus stimulating the plants with growth almost as well as if they were planted in the open ground. This class of plants however are only plunged deep enough so that the rim of the pot is just visible above the material they are plunged in. This allows of water being applied to their roots without waste in using it, as well as allowing a mulch of any kind to be placed around the plants for fertilization or other purposes. It is an easy matter to lift these plants in the fall into the house or greenhouse without in any way disturbing their roots or checking the growth of the plant. It may be necessary perhaps once or twice during the season to lift the pots up an inch or two from their positions, and give them a twist, so as to prevent the roots from penetrating too deeply through the drainage into the soil beneath. All strong grow-

ing plants such as stevias, geraniums, etc., require to be lifted occasionally in this way, when the pots are plunged.

This method of plunging is usually adopted by florists and nurserymen who grow large quantities of different kinds of plants in pots during the summer, it saves a great deal of labor and expense in watering, and is better for the plants mentioned than standing them about even in partially shaded positions during the summer.

The best method however for those who wish to preserve their plants for perhaps a week or ten days with no attention whatever, would be to bury the pots completely about an inch under the soil, in some place suitable for the growth of the plants, whether in a shaded position or out in the open ground.

The plants before mentioned except perhaps the azaleas would be best plunged in a fairly open situation, but palms, cordylines, ficus elastica, aspidistra and similar window and house plants would be best plunged in a partially shaded place.

If the pots are buried completely under the soil as mentioned, and both the pots and the soil around them given a good watering once, they can be left safely for a week or ten days or perhaps longer and will take no harm. They should be lifted however before heavy rains set in, or the drainage may become choked from worms entering the pots. Plunging the pots in coal ashes obviates to a great extent the last named difficulty, as worms will not stay in coal ashes.

Plants that are in a resting state during the summer, such as pelargoniums (show), amaryllis, bulbous tropeolums, cacti, clivias, etc., should be only plunged to the rim of the pot, in the event of having to leave them uncared for a week or so. This partial plunging will retain moisture sufficient to carry the plants through for two weeks, if they are given a good watering

when leaving, and the plants are plunged in a partially shaded position, as they should be.

Pot plants often suffer severely at this season of the year if left standing about only for a few days, even if regularly attended to. The process of plunging, etc., as recommended will be found very beneficial and save many valuable plants that would otherwise perish from drought when left unattended and the pots fully exposed to the air on top of the ground.

THE GREENHOUSE.—Watering and syringing the few plants that are indoors at this season will be the principal work demanding attention in greenhouse or conservatory, as most of the work done now in preparing plants for winter decorative purposes, will of necessity have to be attended to out-of-doors.

If herbaceous calceolarias are grown either for the window or greenhouse the seed should be sown this month, and treated in the same way as recommended in last month's issue of journal for cinerarias. Calceolarias like a cool moist atmosphere, and will not be hurried or forced unduly, being slow growing plants. Three parts of rich loam, one part each of sand and leaf soil with plenty of broken pot for drainage suits calceolarias when potting them from the seed pan. Use small pots and plunge the pots to the rim in sand in a cold frame when first potted. Sprinkle plenty of tobacco stems or dust outside the pots. Calceolarias are very liable to be destroyed by attacks of aphid or green fly and this is one reason why so few of them are grown.

The main batch of freesia bulbs should be potted during August; a few may be kept over for potting in September. Put six bulbs in a 4-inch pot, stand or plunge the pots outside in the open until early frosts threaten. Water them sparingly until growth commences to show.

The accompanying photo taken in February shows, on the right of the picture, a



FIG. 2129. FREESIAS IN FEBRUARY.

shelf of these free-flowering, sweet-scented little flowers that are so useful either for window or conservatory, and that are so easy not only to grow and blossom, but will also increase in numbers considerably if grown as recommended in previous issues of the journal.

Fancy or show pelargoniums should be cut back to within an inch or two of the last season's wood. Shake them out and repot into a size smaller pot, as soon as growth has re-commenced. Water sparingly and shade slightly. A cold frame and sash with slight ventilation will suit them best for a few days after potting when they can be left more exposed for a time.



FIG. 2130. CALLA.

Calla lilies should be repotted if they require it. A top dressing of rich soil will often suffice for these plants, but the drainage must be perfect if the latter plan is practised.

Azaleas should be watered and syringed daily.

FLOWER GARDEN.—Pinch the tips off from the growth of coleus plants to keep them in good shape.

Pansy seed should be sown about the third week in August, to secure plants for planting in cold frames in September. Pansies grown in this way come into flower early in May or perhaps by the end of April.

Label all seeds correctly at the time of picking them. If not done then, it is often not done at all, and when sowing time comes there is a difficulty in knowing just what varieties they are, resulting sometimes in good home-grown seed being thrown away, and perhaps expensive and inferior seed purchased in its place.

If you have a few nice plants of balsams in the border about the end of August, water them well and pot up a few into 6-inch pots; they will flower in the window long after those in the border are over. Pick the seed pods off and pot the plants carefully to ensure success.

Plants of good double or single petunias that are growing out in the border, may be cut back to within a few inches of the roots. In a week or two they may be potted into rather small sized pots. If grown on they will oftentimes flower freely during the winter, besides giving a supply of cuttings in spring for next season's use.

Lilium candidum bulbs can be removed and transplanted about the end of August. *L. tigrinum* should not be transplanted until early in September or later, but do not move lilies unless absolutely necessary as they object to being disturbed. Fork a good rich compost in near their roots instead, as this is often better than removing and transplanting them when they are not thriving.

VEGETABLE GARDEN.—Celery for winter use can still be planted. Mould or board up early celery so as to blanch it ready for use.

A sowing of viroflay or round leaf spinach will, if sown about the second or third week in August, give good returns in October and

November when there is little else but cabbage and cauliflower to supply the table.

White turnip and radishes sown early in August will often make paying returns early in the fall.

Spinach for standing over winter for spring use should be sown not later than the second week in September. The prickly seeded variety is the hardiest.

Onions should be harvested when the bulbs will remove fairly easy from the soil. It is a mistake to leave them too long before pulling. Thoroughly dry the bulbs and place them on a shelf in a dry airy shed until early winter.

Gather seed beans when ripe, before the pods burst or the beans are half-rotten. Keep in a dry place after picking.

Secure the stable manure now that is required for the garden in autumn. Throw the manure into a pile and turn it over once in every two or three weeks. A few pails of water thrown on it will help rot it, if very dry weather prevails. Manure treated in this way comes in very useful for mulching asparagus, or for digging into ground where early spring crops are to be sown or planted and gives better results than raw manure dug into the ground.

Hamilton.

W. HUNT.

PREPARING PLANTS FOR THE WINTER WINDOW GARDEN.

IT is too often the case that the window garden is without flowers in abundance during the latter part of fall when all plants are gone outside, and in many cases this lack enters into the winter months. While it is not so easy to have an abundance of the general collection of house plants in bloom during this period, as nature seems inclined rather to retard growth even of the healthiest and strongest specimens until the genial sunshine of later months is more plentiful, there are a number of plants and common ones, too, which may be had in fair amount of bloom, if attention to preparing them for this purpose be given during the summer and early fall months.

The principle that no plant can be expected to flower profusely during summer and then do double duty by blooming well in the winter is a safe one on which to rely. Successful amateurs are learning that it is not only the florists who may have flowers in winter, but that if plants be given similar treatment as winter flowering ones receive at his hands, a fair degree of satisfaction may be had for early blooming, and a greater degree for still later in the season

when there is more sunlight, even in an ordinary window.

A good lesson may be learned by a walk through a florist's grounds at this time. There are quantities of bouvardias, carnations, heliotropes, geraniums, begonias, and the like without a single flower on them but in fine stocky condition. The flower buds are being all kept down by pinching, which results in the bushy plants that produce a heavy crop of bloom during the winter months because they are in the right condition for the work.

Many grow geraniums, etc., in pots during summer, which is a good plan, but if this has not been done those which have been planted in beds may be lifted, for though they may have become well established and are pushing root and top vigorously, the roots will not by this time have pushed out so far that much injury will result from lifting. Later lifting gives us much more top growth, but the roots have spread over so much ground it is impossible to retain them all.

There are a number of summer blooming bulbs which make fairly good early winter

bloomers. For example, if we take those late gloxinias which have not flowered at the time of drying off the rest, move them to a warm place and water freely, growth will continue so that flowers will come as an acceptable time. I have had gloxinias as late as Thanksgiving and even later. There were among my achimenes a small scarlet variety, unnamed, which was quite willing to flower in winter and often the early started summer plants would continue in bloom late into the fall. This is true of some varieties of tuberous begonias when grown in pots.

August is too late to sow seeds of primroses, cinerarias, etc. for early winter blooms, but just the time for making attractive specimens for spring. The plants of these for early blooming should now be making vigorous growth and be repotted quite often. They require a shaded place.

It will require some careful attention during the summer to keep insects from cinerarias, for the aphid is particularly fond

of it, and when once established it takes considerable time to dislodge him without injury to the plants.

In the recent improvements made in that grand flower, the chrysanthemum, we have a nice number and variety of late blooming sorts which add greatly to the attractiveness of the window garden in late fall and early winter. If more plants of these late kinds than are needed to simply fill up the window be grown, and retarded by keeping them in a cold room after the buds have just begun to open, the season is easily prolonged through the holidays, but the blooms never seem to be as lasting when once allowed to open as those which had no interference with their natural course.

Watering of plants for winter blooming especially should be given careful attention, as a stint in this direction during hot weather cannot result in anything short of positive injury, and therefore decreasing the supply of bloom.—*Popular Gardening*.

SPIREA PRUNIFOLIA FLORE-PLENO.




FIG. 2131. DOUBLE FLOWERING SPIREA PRUNIFOLIA.

THIS pretty dwarf growing double Spirea is by no means a new introduction to the list of flowering shrubs, as it was introduced from China and Japan

over half a century ago. It is one of the best of our early flowering hardy shrubs and gives splendid flowering results, requiring scarcely any care and attention except perhaps to cut out a few of its strongest growing spikes of bloom, so as to keep the bush looking uniform and symmetrical. This shrub comes into flower early in May and continues in flower usually until well into June, retaining its pretty little daisy-like blossoms that it produces so freely in fascicles that almost cover its long slender branches. In a collection of only five or six flowering shrubs this pretty, easily grown, dwarf spirea cannot well be dispensed with. The specimen shown in the photo has been planted about fifteen years and has given annually its full quota of snow-white blossoms.

W. HUNT.

THE TULIP.

F ALL the so called hardy Holland bulbs there is, in all probability, no other one so important for early spring display in the garden as the tulip. For beautiful forms and dazzling brilliancy of color the tulip is far in advance of all other spring flowers and nothing can equal its gorgeous appearance in beds, groups, lines or ribbons in the spring garden or in any other position in which it may be placed.

About the middle of the 15th century the tulip craze began in Holland and since that time there has been no decline of popularity of this most brilliant of spring flowers. In those days there were but very few colors and varieties and most people of the present day are surprised to learn that none but the most wealthy were able to obtain a single bulb, much less have them planted by the thousand in their gardens or lawn beds. Instances of the exorbitant prices demanded for bulbs in those days may prove of interest to readers. One single bulb of the variety "Semper Augustus" was sold for thirteen thousand florins,—about \$5,200. For a bulb of another variety a man paid his friend four thousand florins, a new carriage and a pair of handsome, harnessed horses. In another instance four brothers went into partnership to buy a single tulip bulb, no one of the four having sufficient means to buy it himself. These instances may be received with feelings of doubt but documents are on record to prove the truthfulness of the same and many interesting stories could be told of the great excitement that prevailed at that time and of how fortunes were made and lost in bulb speculation when the tulip mania was at its height in Holland.

Since that time there has come about a great change and now, instead of but few colors, we have them in selfs in all imagin-

able shades of purple, crimson, scarlet, pink, yellow and of the purest white. Of the striped flowers, there are violet, purple, crimson, rose, cerise and yellow stripes on snow-white grounds, and crimson, scarlet, maroon, and red flakes and feathers on rich gold grounds. Instead of paying a fortune for a single bulb we can now get them at such a mere trifle that it is possible for most every home to be supplied with hundreds of them. All this is the result of the work of the hybridist and the practical gardener. The former has spent his time and exercised his skill in improvement of form and color and the latter has studied out the cheapest mode of production and cultivation.

Of the many distinct classes we will in this article give a very short description of but a few, each having distinct characteristics and merits. (1) By bloemens (By blooms).—Of this class there are many beautiful, variegated flowers of many different colors but all of which are striped, flaked, feathered or spotted with white. They are extremely beautiful. (2) Bizarres (Bizarads).—This beautiful class is identical in every respect with the Bybloemens except its rich colors are dark and velvety and its variegations yellow where the Bybloemens are white. A magnificent class. (3) Sweet Scented.—The flowers of this class are more or less fragrant as well as beautiful. (4) Parrot.—These have exquisitely fimbriated petals, made up of crimson, green and yellow colors, some combinations of which remind one of the beautiful plumage of some species of parrot—hence the name. These are extremely large and distinct. (5) Darwin.—This is the most recent class among tulips. The flowers are large, borne on long, slender stems, and are richly colored, the shades ranging from black to crimson (mostly dark)



FIG. 2132. PARROT TULIP.

should be well spaded up and made fine before the bulbs are set. They should be planted four inches deep and from four inches to six inches apart according to size of bulbs. The bed should be slightly raised above the surrounding soil so as to keep water from settling about the bulbs and roots.

In selecting a place for tulips a location should be chosen where they may remain for some years. Many people lift their bulbs every year after they have ripened up in the summer and replant them again in the fall. This is a mistake, for besides the annual labor in connection with lifting and replanting they will not give as fine flowers or multiply as rapidly. They should be left in the bed three or four years; then lift them, divide the clumps and replant.

When a new bed of tulips is being planted the work should be done early in the fall if the best results are desired. Although they may be planted on into November, if the soil is not frozen and still produce flowers, the results will not be satisfactory. The bulb has to make the most of its roots in the fall before the ground freezes up, for as soon as the frost is out of the earth in the spring the flower buds begin to appear. There is then no time for the bulb to make roots but instead the root must be feeding the flower and producing a new bulb. The sooner they are in the better as more time is given for root growth and the more root the larger and finer the bloom the following spring. Early in September is the time when tulips should be planted to give most satisfactory results.

Although tulips are perfectly hardy they do much better if they have some protection through the winter. A covering of coarse stable manure over the bed after it is prepared in the fall, to the depth of four or five inches is the proper thing. This will keep the bulbs from being repeatedly thawed out and frozen up should the winter be an open one, an action that is very trying on the

and are grand. (6) *Gesneriana*.—This is a most brilliant scarlet with blue centre, very large and in many respects the most gorgeous of all tulips. (7) *Single Early*.—Of this class there are hundreds of varieties and to it belong most of the single varieties now seen in cultivation. (8) *Double Early*.—This class furnishes most of the double tulips in cultivation. Some of them are almost as large and as fine as Peonies. (9) *Variegated Foliage*.—This class has many varieties, both double and single. All have beautifully variegated leaves and the flowers are exquisite. This is a most charming as well as a rare class. (10) *Duc Van Thol*.—Of this class there are about a dozen beautiful varieties. They are dwarf of habit but are very early bloomers, in this respect leading all other classes. They are used mostly for forcing for winter blooming.

Tulips are of the easiest culture and when once secured they will last a life time, not only giving regular, yearly bloom but also rapidly increasing annually. They will thrive in any kind of soil, even hard clay. Although this is a fact they will give much more satisfactory results if care is exercised in the selection of their location. They thrive best in a rich, deep, sandy soil. This



FIG. 2133. SINGLE TULIP.

vitality of the bulbs. Besides, the strength is washed out of the manure down into the earth by the autumn rains and thus the soil is enriched. By this annual covering the flowers are made much larger and far more brilliant in color. If manure cannot be secured use old straw or hay or any kind of litter. Of course this must be removed early in the spring.

In buying bulbs for planting do not get the cheapest mixtures that may be secured. Although they give much pleasure, with a little more outlay and the selection of some named varieties the result will be much more pleasing. As they are a thing that will last for years good varieties should be secured in the outset. Among the finest named "Early Single" tulips are :—Canary Bird, yellow ; Cerise Grisdeline, beautiful rose ; Cottage Maid, delicate rose, with white stripes ; Keizer's Kroom, bright crimson, broadly edged with yellow ; L'Immac-

ulee, pure white ; Pottebaker, bright canary yellow ; Van der Neer, the finest of all violets, extra large flower ; Proserpine, rose shaded with salmon, extra. Among late singles are Bybloemens, Bizarres and Parrots. In "Early Double" are :—Gloria Solis, scarlet deeply edged with bright yellow ; Le Blason, white tinged with rose ; Purple Crown, dark purplish red ; Rex Rubrorum, bright scarlet ; Titian, bronze red with pale yellow margin. "Late Doubles" are :—Blue Flag, purplish violet ; La Belle Alliance, violet and white ; Marriage de ma Pille, pure white ; Yellow Rose, golden yellow.

Most pleasing effects can be produced by filling a whole bed either with one variety or with two or three varieties coming into bloom at the same time. In planting more than one variety care should be taken to select colors that will "blend" and also varieties whose flower stems are of the same length. Nothing gives more displeasure to the true gardener than to have a bed of tulips made up of a hundred varieties, some in bloom today and others not until two weeks hence ; some dwarf, some tall ; some single and some double. Solid masses of color is what pleases the flower lover's eye.

The tulip,—the flower that many years ago caused men to go crazy, and the financial ruin of men of wealth ; the flower that was then and is now admired by all, and the growing of which furnishes employment for thousands in Holland, should be extensively planted by every flower lover in the land.

JOHN B. PETTIT.

Fruitland, Ontario.

PRUNING LILACS.—Whatever pruning is necessary should be done during the winter months when the plants are dormant, and this should always be performed with great care. The reason for this is obvious. The flowering buds of lilacs, like a great many

other woody plants, are formed during the summer of the year previous to which they flower ; an expert can readily tell in looking over lilacs in winter to what extent they will bloom in the following spring by recognizing whether the buds are leaf buds or

flowering buds. It is very easy then for an experienced pruner to go through some 'trimming operations' and ignorantly remove all, or nearly all, the flowering branches, and when spring comes there will be a round-headed example of the work of the pruning shears, minus flowers. All we do in winter is to remove and thin out the weak straggling branches from the interiors of the bushes, as these never carry flower buds, and thereby throw the energies of the plants into the flowering branches. During the growing season a constant watch should be maintained to remove sprouts and suckers from the base of the plants, as nearly all varieties of Lilacs that are purchased from nurseries are either budded or grafted, so that sprouts from the base are almost sure

to be from the stock and should be promptly removed as soon as noticed.

Lilacs are frequently attacked and killed by a species of borer. This borer may be slightly reduced in numbers, but there is no real, effectual remedy for this serious and destructive pest, and the cultivator is practically helpless in its presence. They are sometimes attacked by scale or bark lice, for which the best remedy is whale oil soap dissolved in the proportion of two pounds to one gallon of water. This should be rubbed on the branches in winter when the plants are dormant. If, however, the plants are seriously affected, the best plan is to destroy them, thus preventing its spread to other bushes.—*Vicks Monthly*.

SPIREA BUMALDA.



FIG. 2134. SPIREA BUMALDA.

This spirea is of Japanese origin, its dwarf habit and comparatively late flowering character making it a desirable shrub for use on lawns. The flowers are produced very freely in large corymbs at the terminal points of the young growth. When first

open the flowers are of a delicate pink color, changing in a day or two to a lighter shade of mauve pink. The plant shown in the photo has flowered freely every year during July for the past twelve years, frequently producing a few sprays of flowers at intervals until quite late in the autumn. The new spirea, "Anthony Waterer" sent out by the association as a premium this spring, belongs to the same class of spireas and is supposed to be an improvement on the variety figured in the photo, both in color of flower and habit of growth. The plant figured in the photograph is growing in an open situation fully exposed to the north-west winds, as well as the sun during summer and winter. It has had no protection beyond that given it by the snow which speaks well for its hardiness in this section of Ontario at least.

Hamilton.

W. HUNT.



FIG. 2135. LAWN VIEW.

RENOVATING AND MULCHING LAWNS.

ALTHOUGH this is not the proper season for applying a mulch to lawns, a compost suitable for this purpose should be in course of preparation, so as to be in readiness to be applied to the lawn in early autumn.

The too common practice of applying late in the autumn—or perhaps in early winter—a heavy coating of raw stable manure is productive of very little good to lawns, to say nothing of its unsightly appearance during a great part of the winter, when there is no snow to cover it from sight. Another objection to this kind of mulch is that it is often the means of introducing a crop of weeds on the lawn, from weed seeds and roots that have not been destroyed by a proper preparation of the material previous to its being used. Even as a fertilizer this mulch is of very little benefit, as owing to its unsightliness, objectionable odor, etc., its application of necessity has to be deferred until snow and hard frost appear. This, and the necessity of removing it early in the

spring, gives it very little opportunity to convey any of its fertilizing properties to the lawn.

Oftentimes the mulch mentioned is applied with the idea of protecting, and preventing the finer grasses and clover from being winter killed. A very slight mulch of this kind will doubtless in many cases assist in this way—especially where the sod has been recently put down—but if the mulch is applied too heavily as is often done, its application is productive of more harm than good, as it forms the basis for a thick coating of ice and frozen snow, that is not beneficial to the existence of many of the finer grasses and clover.

Imperfect subsoil or under-drainage is also in many cases the cause of clover and the finer lawn grasses being killed out on lawns in winter. If the under-drainage of the lawn is imperfect, no amount of mulching or top-dressings will be of any benefit, or produce a good close sod, until the lawn has been thoroughly under-drained.

A thin coating of well rotted stable manure distributed evenly over the lawn in late autumn will be found beneficial as a fertilizer. If given a good raking down in early spring the greater part of this mulching will be retained, and so benefit the growth of the sod during the summer season.

The most effective and lasting mulch, however, for a lawn that is not in good condition, is a good rich earth-mulch.

Equal quantities of any light friable soil, free from roots or weed-seeds, thoroughly mixed with some well rotted stable manure, makes an ideal mulch for a lawn. This compost should be obtained now—if a mulch is required for the lawn—and thrown into a heap and turned over once in every two or three weeks until October, when it can be spread on the lawn at any time after grass cutting has ceased. This turning over or mixing process should be done so as to place the compost that is in the centre of the heap as much as possible on the outside each time the compost is turned over. This will expose all of the compost to the light and air, and allow any weed-seeds to germinate, and thus destroy them by successive turnings. All sticks, gravel or roots should be picked out when turning over the compost.

If this mulch is applied early in the autumn, and evenly distributed over the lawn by a thorough raking with an ordinary garden rake, it will not only act as a fertilizer but will also level up any uneven places caused by over-wear, or by the extraction of coarse weeds, etc. An earth mulch also furnishes a good surface soil for starting into growth any lawn-grass or clover seeds that may be sown in early spring to thicken up and improve the sod.

A sufficient thickness of this mulch can be spread on the lawn early in autumn to almost cover the grass from view. The greater part of the mulch will have become absorbed and lost sight of by spring. Sufficient however will usually be left on the surface to encourage the growth of lawn-grass and

dwarf clover seeds, and for fertilization purposes, without in any way interfering with grass cutting early in the season.

The quantity of mulch required to be spread on, must be determined by the size of the lawn and the condition the sod is in. If the sod is very broken or uneven it will require a much heavier mulching than if the grass is in fairly good condition.

Any places on the lawn that are almost bare of grass should be first loosened up an inch or two deep before the mulch is applied; or the mulch may be forked into the soil to that depth and good results attained by sowing lawn-grass seed on it in early spring.

A thin dressing of bone dust, wood ashes, or some of the commercial fertilizers sold for this purpose, are good stimulants for a lawn that is in a fairly good condition. These should be applied early in the spring. But where the grass on a lawn is thin and the surface uneven and broken, there is nothing better to renovate and improve it permanently than a good earth-mulch.

A well-kept lawn, even if it be only a few square yards in extent, adds very much to the beauty of its surroundings, but to attain the best possible results in this direction it requires, once in every two or three years, some encouragement in the shape of fertilizers or mulchings, beyond the ordinary routine care of watering and mowing given it during the summer. Lawns, like pasture fields, soon fail to give satisfactory results unless renewed or stimulated occasionally, a fact that is often lost sight of, and one that will often account for so many lawns becoming infested with coarse, unsightly weeds. On lawns where a close growth of grass and clover can be secured, the less room for, and the fewer weeds will be found. A good rich mulching once in every two or three years is one of the main features necessary in the care of a lawn so as to have it in the best possible condition.

W. HUNT.

Hamilton.

PEONIES AND THEIR CULTIVATION.*



FIG. 2136. SATSU-GASHIRA, PEONY.

THE Chinese herbaceous peony originated in Siberia. Its tuberous roots were used by the Tartars as an article of food.

Since Messer Schmidt in 1725 gave the original single white form a botanical status, it has been called by various authorities the white flowering, the edible, the fragrant, and now commonly the Chinese peony.

PROPAGATION.—There are three methods by which Peonies are propagated; by division of roots (the most prevalent): by grafting to rapidly increase rare sorts, and by seeds to obtain new varieties.

DIVISION OF ROOTS.—This is the easiest

and most satisfactory method. The roots may be lifted and divided any time from the middle of August until the stalks appear again in the spring.

The best time, however, is in the early fall when the cut surfaces soon callous over and new rootlets form before the frost sets in.

Take a large stool, cut off the leaves and separate into as many divisions as can be made with an eye to each tuber.

In digging, care should be taken that all of the tubers are dug up, for if not, they may remain dormant a season, and then produce a shoot, giving rise to many stray plants frequently found in old beds.

Tubers divided without an eye should also be planted, as they often act in a similar manner, and make a showing above ground in two years' time.

GRAFTING.—This method is resorted to in herbaceous Peonies when new and rare varieties are to be rapidly increased.

An eye of the desired sort is inserted into the tuber of some strong growing variety, from which all the previous eyes have been removed.

This operation is generally performed in August. They should be placed in frames for the winter and transplanted the next year into nursery rows.

SEEDS.—Propagating by seed is somewhat tedious, and is only resorted to for increasing distinct species and for obtaining new varieties by hybridization.

*This paper on the peony, by W. A. Peterson, is reprinted from Bailey's Encyclopedia of Horticulture, an invaluable work to all students of Horticulture.



FIG. 2137. SOLFATERRE, PEONY.

The seeds should be gathered as soon as ripe and kept damp until sown in November.

A mulch during the first season will keep the ground moist and prevent weeds from growing.

Generally two years are required for the seed to germinate, and three more before a well developed bloom can be expected.

Nearly all of the one thousand or more named double varieties grown at present have been obtained by crossing the various forms of *albiflora* and *officinalis*.

In 1855 only twenty-four double varieties were known.

SOIL.—Peonies grow in all kinds of soil, but do best in a deep, rich, rather moist loam.

A clay sub-soil, if well drained, is very beneficial when blooms are desired, but the tubers ramify more in lighter soil if grown for propagating purposes.

In preparing the bed it should be thoroughly trenched two or more feet deep, working in a great quantity of good rich cow manure, as they are gross feeders.

The ground should be kept well cultivated and an annual top dressing put above the plants in November, which should be forked into the soil the next spring.

Peonies should have a liberal supply of water at all times, and especially while in bloom.

Liquid manure when applied during the growing season and at a time when the ground is dry, gives good return, both in the growth of the plant and size of the bloom.

PLANTING.—The crowns should be set two inches below the surface.

In transplanting it is a good plan to remove all the old earth so as to start with fresh unimpooverished soil next to the roots.

The flowers produced on small divided plants are apt to be imperfect, but when thoroughly established a plant will continue to bloom, if undisturbed, for upwards of twenty years.

During the period of blooming an inconspicuous wire support is desirable, as a heavy rain often beats down the flowers.

FORCING.—Lift the plants in October and place in a cold frame where they can be easily gotten at when the time for forcing arrives.

When brought under glass, a uniform temperature of 55 to 60 degrees should be maintained.

By feeding well with liquid manure, strong blooms can be produced in eight weeks.

A two years' rest is necessary for the plants before being forced again. To secure extra fine blooms on double flowering varieties, remove the lateral buds as soon as formed. When the first lateral bud is retained instead of the terminal one, a later period of blooming is obtained.

The old flowers should be cut off so that no unnecessary seed follicles will be formed, and thereby exhaust the plant.

It is also important to remove the faded foliage on all peonies in November, so that it may not interfere with the next season's shoots.

GROUPING.—The old-fashioned early red "piny" of the time of Pliny is still a favorite in our gardens, and with the host of modern varieties available, ranging from purest white to deepest crimson, in such a diversity of form and size, afford great opportunity for the carrying out of extensive color schemes.

Peonies do well in partial shade which prolongs and intensifies the color of the bloom, and therefore can be used to advantage to brighten up sombre nooks.

The period of blooming for herbaceous peonies ranges from the middle of May through the month of June. They grow from one to three feet high, and are therefore suitable for planting in front of shrubbery, along drive ways, and are especially pleasing when entering into a distant vista.

When planted in a border with fall-blooming perennials such as phlox, funkia, etc., its rich glossy foliage is very effective. In delicacy of foliage the peony more nearly approaches the rose than any other flower.

The single-flowering sorts are not so popular as the double ones, for they do not keep as long when cut, and fade more rapidly when on the plant.

Peonies, like most tuberous plants, when dormant, stand considerable exposure and can be shipped long distances with safety.

This family of perennials is never attacked by any insect, animal or fungous disease; neither do they require any covering during the severest weather; in fact they are among the most hardy, showy and easily grown of all the garden flowers.

THE CALIFORNIAN POPPY.—The miles,—the acres,—of wild flowers in bloom in February and March, in Southern California, almost surpass belief. The Golden Eschscholtzias, or Californian Poppies, make not one but many a field of cloth of gold. We have the large one, with its four petals of one unvaried gold; another, the centre of which is of the same sunlit hue, while the borders of the petals are lemon color; yet another with petals almost white, the color of a child's flaxen hair. They last some time, wrapping their drapery about them in the late afternoon, sleeping sweetly till they may greet the morning sun; and if a cloud

obscures his face, they keep on until he comes in brilliant array. But the loveliest thing about these devoted admirers of the sun is, when their bloom is over we see them no more.

We never have the pain of seeing so much beauty fade, wither and go to decay. The wind takes their ripe petals away, while in the glory of apparent youth and vigor,—they are simply seen no more; but a pretty seed-vessel appears in their place, the pod elongates, seeds ripen and scatter to develop another harvest of sunbeams.—*Meehan's Monthly*.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE 25TH ANNUAL SESSION of the Georgia State Horticultural Society will be held at Millidgeville, Ga., on Wednesday and Thursday, August 7th and 8th, 1901.

COLD STORAGE on a large scale is proposed in the County of Argenteuil, Quebec, by capitalists of that Province, the object being to preserve good products of farmers with a view of their ultimate export. A subsidy of \$5,000 is asked of the Government.

THE REPORT.—We regret to announce that the Department of Agriculture has not been able to bind the Report in cloth as usual, for our members, having used the money in printing several thousand additional copies for the members of the Farmers' Institute. Our members will therefore receive paper covered copies this year.

THE APPLE CROP.—Recent reports indicate a far worse apple prospect than at first reported. The fruit has dropped continuously until in orchards reported fair, the prospects now are poor. Taking the word "average" to mean from 40 to 60 per cent.; "under" to mean below 40 and "over" to mean over 60 per. cent.—the reports from Ontario and from the middle and eastern States all show a crop under the average if indeed it should not be called poor to very poor. The western apple belt, though a little better, is still uniformly under the average.

J. W. BIGELOW, Esq., president of the Nova Scotia Fruit Growers' Association, has issued the following bulletin respecting the prospective apple crop:

From the most reliable information obtainable, the apple crop generally is a compar-

ative failure in Ontario. The same is true of the apple crop of New York and most of the Eastern States; and a general average of all the apple producing territory east of the Mississippi river gives less than fifty per cent. of an average crop.

Our Nova Scotia crop may be safely estimated at seventy per cent. of good apples, and if packed strictly in accordance with the Fruit Marks Act now in force, we may reasonably expect the highest price paid for apples during the past ten years.

TORONTO FRESH AIR FUND.—The Toronto Fresh Air Fund has entered upon its eighth year's work, and has for its object the sending away to the country for two weeks, mothers and children who are badly in need of a change. Good homes have been provided, many of them on farms, where they get substantial food and are well cared for. These children and parents are selected by the best known Mission Workers in Toronto, who are well acquainted with every case that is dealt with. For the mothers and babes who are unable to leave home, day excursions are arranged, and about one hundred at a time are taken to one of the Parks on the Lake Shore, and before leaving for home refreshments are served to them. The pleasure and the profit that is the outcome of this work is inestimable. Thinking that some of our readers might like to help their poorer brethren, we will receive subscriptions and acknowledge receipt, and forward it to the Treasurer in Toronto, or they may be sent direct to the Rev. H. C. Dixon, Room 6, 15 Toronto St., Toronto.

A NEW APPLE BARREL.—A new apple barrel—an inspection barrel it is called—is being introduced on the Chicago market. It is described as follows: Six inches from the end of a stave is sawed crosswise $1\frac{1}{2}$ inches on a bevel, and then sawed length-

wise $14\frac{1}{8}$ inches, giving an integral tongue, still attached to the stave and easily sprung outward. These staves are from $3\frac{1}{2}$ to 4 inches wide and $28\frac{1}{2}$ inches long. Four of these staves are put into a barrel (on opposite sides of the barrel), so that two of the tongues open from end of the barrel and two from the other; and, by raising the middle hoops and springing out the tongues, a view of the fruit is to be had every quarter of the distance around the barrel nearly its entire length, a fact which the patentees claim would completely discourage the deceptive packer in trying to mix poor fruit with the good, as there is no room for the poor fruit, which fact is sufficient guarantee that fruit packed in these barrels will be true to mark and of the grade represented.—*Fruit Trade Journal*.

CRUDE PETROLEUM vs. arsenic as an insecticide has been under test by Mr. G. E. Fisher, Provincial Inspector for San Jose Scale. Hitherto this spray has been considered quite unsafe as an application to the foliage, and only recommended for use before it appears. On the 21st of June Mr. Fisher applied a spray of Paris green to some trees affected with canker worm, and of crude petroleum to others. Four days after he examined the trees and found those sprayed with crude petroleum more completely cleared of worms than those treated with arsenic, and the foliage, so far, not injured in the least by the petroleum. No doubt Mr. Fisher has the secret of safety in the manner of application. The danger is in giving an overdose, and most spray nozzles are altogether too coarse and cannot be regulated so as to produce a vapor. The smallest Vermorel nozzle made has an aperture of $5/100$ of an inch, or 20 diameters to the inch, but Mr. Fisher has employed a watchmaker to make much finer ones, some of them even as small as $2/100$, or fifty to the inch. With those an exceedingly fine

spray was made, and every part of the foliage covered, but with so small a quantity of petroleum that no harm was likely to result. This is a much more sensible plan than that of attempting to mix kerosene and water, for they will only mix mechanically, not really, and will separate almost immediately. It is simple of application and in every way an admirable insecticide. It can be applied without injury to the foliage.

We have ourselves tried pure kerosene oil as an insecticide, applying it with an atomizer in very fine spray to rose bushes for the aphids, and had excellent results. We found the foliage, however, destroyed wherever the spray was applied a little too freely. The crude petroleum is less injurious, however.

THE FRUIT PROSPECTS for 1901 seem to grow worse every day. The cherries at first promised a fair crop, and of some varieties the green fruit hung upon the trees in great abundance, but the nearer it came to maturity the less there remained, until harvest time when we began to gather, and lo ! between rot, and blight, and worm, there was then none fit to market. Our cherry plot, from which we expected such a rich report, is so barren of fruit that we cannot find even a single specimen for purposes of study.

The few apples which had set are rapidly falling to the ground, until in an orchard at Maplehurst, where we should count the crop by thousands of barrels, there will probably not be fifty barrels of winter apples !

Peaches are holding their own very well, and now that we are so well on in the season, we doubt not they will hold to the end, and that there will be a pretty good crop of this luscious fruit.

Pears and grapes promise better than any other fruits, and should high prices prevail for those fruits owing to the scarcity in other parts, then we may hope for a fairly remunerative season after all.

No doubt the cause of the cherry and

apple failure is the continuous rains in the month of May, while the bloom was on. The effort of nature is to produce seed and the fruit is only the envelope to protect or nourish the seed ; this washing out of the pollen prevents fertilization of the seed and it therefore becomes aborted. The fruit envelope therefore in Nature's view is useless and the whole thing is cast of as worthless.

AMERICAN POMOLOGICAL SOCIETY.—The details of the meeting of the American Pomological Society, which will be held in Buffalo, September 12 and 13, 1901, are rapidly being perfected and will soon be announced. The program contains the names of a number of the most prominent horticulturists of the United States and Canada, and is particularly rich in topics of practical importance to fruit growers. Among the subjects already arranged for are the following :

"A Comparison of Eastern and Pacific Coast Fruit Culture," by Prof. L. H. Bailey, Ithaca, N. Y.

"Orchard Renovation," by J. H. Hale, South Glastonbury, Conn.; to be discussed by R. S. Eaton, Wolfville, Nova Scotia ; W. T. Macoun, Ottawa, Canada, and others.

"Quality and the Market," by C. W. Garfield, Grand Rapids, Mich.; to be discussed by S. D. Willard, Geneva, N. Y.; L. A. Goodman, Kansas City, Mo., and others.

"Development and Needs of the Export Trade in North American Fruits," by L. Woolverton, Grimsby, Ontario; to be discussed by Geo. T. Powell, Briarcliff Manor, N.Y.; H. M. Dunlap, Savoy, Ill.; Henry E. Dosch, Hillsdale, Oreg., and others.

"Fermentation of Fruit Juices by Control Methods," by Prof. Wm. B. Alwood, Blacksburg, Va.

"Some Experiments in Orchard Treatment and the Results," by Prof. F. M. Webster, Wooster, Ohio.

"The Utilization of Culls in Commercial

Orchards," by Judge F. Wellhouse, Fairmount, Kans.

"The Mango ; Its Propagation and Culture," by Prof. E. Gale, Mangonia, Fla.

"Loquat Culture," by C. P. Taft, Orange, Cal.

One evening will be devoted to a joint session with the National Bee Keepers' Association, during which the following topics will be discussed :

"Spraying Fruit Trees in Bloom," by Prof. S. A. Beach, Geneva, N. Y.

"Bees as Fertilizers of Flowers," by Prof. James Fletcher, Ottawa, Canada.

The discussion of these topics will be led by Mr. R. M. Kellogg, Three Rivers, Mich.

Other topics will be announced later and a detailed program mailed to all members of the society and delegates to the meeting, as well as to such persons interested as request it of the Secretary.

Delegates have already been appointed by more than twenty State and Provincial horticultural societies, and the indications are very favorable for a large attendance.

The fruit exhibit of the society will be held in the Exposition Horticultural Building, space having been generously granted by the Exposition authorities. Exhibits entered for the Wilder Medals of the Society will also be eligible to Exposition awards. Those contemplating the exhibition of fruits should make early application for space to the Secretary. All persons interested in fruits and fruit culture are welcomed to membership.

Announcement of hotel rates, meeting place and other details will be made at an early day.

The officers of the Society are : President, Chas. L. Watrous, Des Moines, Ia.; First Vice-President, Thos. Meehan, Germantown, Philadelphia, Pa.; Secretary, Wm. A. Taylor, 55 Q. street northeast, Washington, D. C.; Treasurer, L. R. Taft, Agricultural College, Michigan ; Chairman Executive Committee, Chas. W. Garfield, Grand Rapids, Mich.

QUESTION DRAWER.

Crown Grafting.

1234. SIR,—I saw article re crown grafting recently in Horticulturist. Do you consider it perfectly safe to cut off a tree from 5 to 8 inches in diameter, at 3 to 5 feet from the ground and insert the crown graft? Is such work ever done? Or is it preferable to cut off one or two leading branches one year and the others the next year?

Yours truly,

Iroquois Ont.

A. B. CARMAN.

Crown grafting is not as good as cleft grafting, except in the case of large limbs, too old to split. These can be most successfully done in this way, the growth of the young scions soon covering the sawn surface, which they could not do if the wood were cleaved. Another reason for describing crown grafting is its simplicity. Anybody

can do it, and he needs no special tools, and no wax. All he needs is a scion, some string and paper, some mud, and a sharp saw. The method is quite successful, as a large number of old trees, crown grafted, testify at Maplehurst.

Grass Dying.

1235. SIR,—Can you tell me the cause, and if so, a remedy for dead spots of from eight to ten inches in diameter appearing in my lawn? The house was built last summer and earth from the cellar with the addition of fresh earth to fill up, was graded and put in good shape last fall. This spring I sowed bone dust, and a day or two later grass and clover seed mixed. It took well and grew splendidly, making a fine lawn which I have mowed several times already. Lately, however, the dead spots spoken of have

appeared, the clover not being affected so much as the grass which turns brown, and is withered as if about dead. There are fifteen or twenty such spots. I thought lime from the brick walls might be the cause, but in only one or two of the spots could I find any, and then but very small pieces. An answer will greatly oblige,

SUBSCRIBER.

Evidently something is wrong with the soil in those spots. Possibly too much lime or other element. Possibly the best remedy will be the removal of the earth five or six inches deep, and the replacing with earth that is rich and clear of such impurities.

Moth Catchers.

1236. SIR,—As I am interested in fruit growing, I sent for a moth-trap from S. A. Haseltines, Springfield, Mo., U. S., which did not give very good satisfaction, so I got a contrivance made to fit on an ordinary farm lantern which proved more satisfactory. If I were to send a number, free of all cost, would you mind trying one yourself or

give them to a good practical fruit grower who will give them a fair test?

I would also like to know if there are any moths beneficial to farmers, if so, where will I find their description and the benefits the farmers derive from them.

Branchton.

A. LAKE.

We cannot say much in favor of this hazardous, wholesale method of killing insects, not one in twenty of which would be injurious to fruits, while friends as well as foes would be included in the wholesale destruction. Those who have examined batches, so collected, say that very few of the codling moths are attracted by the light, and this is one of the most serious of our insect enemies in Ontario.

For information about injurious insects we would refer our subscriber to "Saunders' Insects Injurious to Fruits," or to "Weed's Insects and Insecticides."

Open Letters.

The Fruit Marks Act.

SIR,—While admitting your right to criticise the action of the Senate regarding the Fruit Marks Act, 1901, will you permit me to say that the comments in July number of the Horticulturist furnish an amusing commentary on the claim for superior knowledge. You set up for certain "wise heads," who have taken some interest in this legislation.

In the first place the Bill you publish, "as finally amended and assented to by the Senate and the House of Commons," is not the act as so passed. You are evidently unaware of the fact that in addition to striking out clauses 6 and 7 as the Bill passed the Commons, the Senate made three other important amendments thereto.

As one who took part in expunging clauses 6 and 7, I might reply to your complimentary remarks by saying that the persons who drafted these clauses and asked parliament to ratify them, were evidently ignorant of their real bearing, but I forbear, as that might seem discourteous. Here are the clauses in question.

6. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked "A No. 1 Canadian" unless such fruit consists of nearly uniform size, of good color for the variety, of normal shape and not less than ninety per cent. free from scab, worm holes, bruises and other defects, and properly packed.

7. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked the grade "No. 1 Canadian" unless such fruit consists of specimens of one variety, sound, of fairly uniform size and not less than eighty per cent. free from scab, worm holes, bruises and other defects, and properly packed.

These clauses if enacted would declare to the world that a barrel of No. 1 Canadian apples might contain 20 quarts of wormy or scabby apples, and that a barrel of A No. 1 Canadian apples might contain 10 quarts of similarly defective fruit. It would in my opinion be impossible to give a more damaging advertisement than this, to Canadian fruits, and our American competitors would be very dull if they did not point triumphantly to the low standard thus created by the Parliament of Canada. Clauses 6 and 7 were vicious because they

aimed to reduce the standard of Canadian apples so as to conform with practices which unfortunately some of our shippers have resorted to. The aim of the Act as it now stands is to compel packers to raise their standard.

There is nothing in the Fruit Marks Act, 1901, which provides for any inspection in Canada except an examination for detective purposes, therefore, I cannot understand your meaning when you say: "Now by these sections a grower might contract with a buyer in England for a certain number of barrels of apples of grade No. 1 Canadian, a grade well defined, making the packages subject to inspection, and the buyer could with confidence make such purchase without seeing the goods."

Surely it is not claimed that sections 6 and 7, if enacted, would make apples hold up against bad conditions on shipboard so as to stand inspection in Great Britain.

That all the amendments made by the Senate to the Bill in question were promptly accepted by the House of Commons with the concurrence of the Government is pretty good evidence of the correctness of the lines on which the Senate acted.

Tulloch Avenue, I am yours,
Charlottetown, P. E. I. D. FERGUSON.
July 22nd, 1901.

NOTE BY EDITOR.

Since "half a loaf is better than no bread," and the bill is settled for the present, we wait to see its workings before criticising farther the omission of those important clauses, No. 6 and 7. We have no doubt that the Honorable D. Ferguson is as anxious for the advancement of the interest of the fruit growers of the Dominion as we are, and we only hope the bill as amended through his instrumentality will tend to raise

the standard of Canadian apples in foreign markets.

On first thought it does seem too much freedom to make allowance for even a small percentage of defective fruit in a barrel, but if our honorable friend were an apple packer he would know how difficult *absolute perfection* is, and how easy, when pushing the packing with hired help, it is for one apple in ten to pass unobserved into the barrel, though aiming at perfect samples only. This 80 or 90 per cent. perfect would be a very high standard compared with Canadian apples as usually packed by speculators, in which 80 or 90 per cent. are blemished and the 10 or 20 per cent. of perfect apples used to face up the ends of the barrels.

Our honorable friend claims that these clauses would not give any confidence to a buyer in England when bargaining with a grower or packer in Canada for a shipment of apples, which were to be A No. 1 Canadian, of a certain specified minimum diameter, because they would not necessarily be inspected, but only subject to inspection. On this we beg to differ from him; we believe the fact of a few travelling inspectors being appointed, with power to impose heavy penalties upon any shipper found selling apples marked with the Dominion grade marks, would prevent any one using those marks unless his goods warranted their use, and this fact would give confidence to the buyer.

However we are thankful for small favors, and hope some future day we may yet have the satisfaction of having certain defined grades which will form a basis of sale to foreign buyers.

Our Affiliated Societies.

COBOURG.—The Society here issued a circular about April the 20th, giving with other information, the following full list of premiums for each member: *Pæonia nivensis*, *Iris Germanica*, *Iris Kœmpferi*, Kelway's English Gaillardias, Phlox,

Doronicum excelsum, *Spiraea*, *Japonica Bumalda*, Baker's Extra Early Potato, New Triumph Celery, Kendall's Early Giant Sweet Corn, New Dwarf Telephone Pea, White Pearl Radish.

FRUIT CROP REPORT.

	Apples.	Pears.	Peaches.	Plums.	Grapes.	REMARKS.
ESSEX Co.— W. W. Hilborn, Leamington.	under	average	under	over		Apples will be a very small crop.
ORILLIA.— C. L. Stephens. WENTWORTH Co.— M. Pettit, Winona.	average	under		over		
W. M. Orr, Fruitland.	under	over	average	average	over	The few apples that did set are dropping. No fungus.
OXFORD Co.— J. S. Scarff, Woodstock.	under	average	average	under		
LINCOLN Co.— A. M. Smith, St. Catharines.	under	over	under	average	over	
VICTORIA Co.— Thos. Beall, Lindsay.	under	average		under		
OTTAWA.— R. B. Whyte.	under			under		
ONTARIO Co.— Elmer Lick, Oshawa.	under	average			over	
R. L. Huggard, Whitby.	under			average		
GRENVILLE Co.— H. Jones, Maitland.	under	under	none	none		
PERTH Co.— T. H. Race, Mitchell.	under	average	none	over	none	The only apple near an average is the Spy.
SIMCOE Co.— Stanley Spillett, Nantyr.	under	average	none	over		
HALTON Co.— A. W. Peart, Freeman.	under	average	under	average	average	
GREY Co.— J. I. Graham, Vaudeleur.	under	over		over		
SIMCOE Co.— G. C. Caston, Craighurst.	under	average		over		
PRINCE EDWARD Co.— W. Boulter, Picton.	under	average	none	under		
ALGOMA.— Chas. Young, Richard's Landing.	average	average		under		

Under average—Under 40% of a crop.

Average—40% to 60% of a crop.

Over average—Over 60% of a crop.



FIG. 2138. BLENHEIM APPLE.

THE CANADIAN HORTICULTURIST

VOL 24

1901

No 9

** SEPTEMBER **

BLLENHEIM.

(BLLENHEIM ORANGE, BLLENHEIM PIPPIN, WOODSTOCK.)

An apple that is constantly gaining in favor with both grower and consumers, because of its size, its beauty, its evenness of form and general excellence for cooking purposes and dessert purposes. It is grown in the Counties of Prince Edward, Victoria, Lincoln, and elsewhere, and is highly valued as a commercial apple. It certainly deserves to be more generally planted.

ORIGIN: a garden in Woodstock, England, near the residence of the Duke of Marlborough, shown at a meeting of the London Horticultural Society in 1819 and introduced into France about 1840.

TREE: very vigorous in habit, and consequently a scant bearer young, but a regular and abundant bearer as it grows older; dwarfed on the Paradise stock the tree becomes an early bearer.

FRUIT: large to very large on favorable soil, averaging three inches high by three and a half broad; form roundish oblate, slightly smaller at the apex than at the base, very regular; color, yellowish, splashed with dull red on sunny side, and streaked with deep red dots small and distinct; stock short, $\frac{3}{4}$ of an inch long, stout in a large russeted cavity; calyx, large and very open, with short segments placed in a large, green cavity.

FLESH: creamy white, fine, crisp, moderately juicy. Flavor, sweet, spicy, slightly acid.

SEASON: November to February.

QUALITY: dessert, good; cooking very good.

VALUE: home and foreign markets first class.

ADAPTATION: Ontario, south of latitude 44 $\frac{1}{2}$.

One of the mysteries about apple growing in Ontario is the immense number of unprofitable varieties grown in what are supposed to be the best orchards, not to speak of the nameless seedling trees we have in the

older orchards: such varieties, for example, as Golden Sweet, Rambo, Fall Pippin, Blue Pearmain, Keswick Codlin, Hawley, Maiden's Blush, St. Lawrence, Colvert, Vandevere, Tallman Sweet, English Russet and many other varieties, many of which have ranked high in past days, but now owing to scab or blight, unproductiveness or early decay, are inferior to other varieties that are available. As we have often said in these columns, we must make a radical change and that right soon, if we would have such apples as will do Ontario credit in the British markets.

The Blenheim Orange is one of the few apples of its season that is worthy of a place in our commercial orchards for foreign shipments. Ever since its origin in England, about a century ago, it has steadily advanced in favor, and is now highly valued in England, France, and America, supplanting in Canada the once famous Ribston, of the same season.

This excellent apple was grown from the seed by a baker named Kempster at Woodstock, near Blenheim, the seat of the Duke of Marlborough. At first it was called Wood-

stock, then the Apple of Blenheim, and this latter name prevails to-day. It was first exhibited before the London Horticultural society on the 15th of January, 1819, by Mr. John Turner, after which it began to be cultivated in the English nurseries. The following interesting account of this favorite variety appeared some years ago in the *Gardener's Chronicle*.—

“In a somewhat dilapidated corner of the decaying borough of ancient Woodstock, within ten yards of the wall of Blenheim Park, stands all that remains of the original stump of that beautiful and justly celebrated apple, the Blenheim Orange. It is now entirely dead, and rapidly falling to decay, being a mere shell about ten feet high, loose in the ground, and having a large hole in the centre; till within the last three years, it occasionally sent up long, thin, wiry twigs, but this last sign of vitality has ceased, and what remains will soon be the portion of the woodlouse and the worm. Old Grimmett, the basket-maker, against the corner of whose garden wall the venerable relict is supported, has sat looking on it from his workshop window, and while he wove the pliant osier, has meditated, for more than

fifty successive summers, on the mutability of all sublunary substances, on juice, and core, and vegetable, as well as animal, and flesh, and blood. He can remember the time when, fifty years ago, he was a boy, and the tree a fine-full-bearing stem, full of bud, and blossom and fruit, and thousands thronged from all parts to gaze on its ruddy, ripening, orange burden; then gardeners came in the spring-tide to select the much coveted scions and to hear the tale of his horticultural child and sapling, from the lips of the son of the white-haired Kempster. But nearly a century has elapsed since Kempster fell, like a ripened fruit, and was gathered to his fathers. He lived in a narrow cottage garden in Old Woodstock, a plain, practical, laboring man; and in the midst of his bees and flowers around him, and in his ‘glorious pride’, in the midst of his little garden, he realized Virgil’s dream of the old Corycian, ‘*Et regum equabat opes animis.*’

“The provincial name for this apple is still ‘Kempster’s Pippin’, a lasting monumental tribute and inscription to him who first planted the kernel from whence it sprang.”

THE STRINGFELLOW METHOD of tree planting, about which so much has been said of late, has proved a failure, just as common sense would lead any one to expect. The *American Agriculturist* says:—“The experiment of H. M. Stringfellow of Texas of cutting off the roots and setting the stub in a hole driven by a bar, has proved a failure. Most of the trees have died from one cause or another, and less than 300 are left from 1000 set in February, 1900. Owing to the

lack of side roots there was nothing to anchor the trees and the wind soon loosened them. The ground not being plowed or put in good tillage condition, soon dried out, and with the extreme dry weather following the trees soon began to die. Hereafter Mr. Stringfellow will leave more top root and some side roots in setting, but will still continue a closer system of pruning than most practical horticulturists believe wise.”

PAN-AMERICAN HORTICULTURE—III.

GENERAL REMARKS. — Ontario visitors have been slow in making their first visit to this great exposition, which is strange considering how near their very doors lies this marvellous production of science and art. Now that the fruit exhibit is at its height, there is no reason why the five or six thousand readers of this journal should delay any longer, and one visit will only create an appetite for several more.

Our excursion trains usually land us near the northern side of the grounds, and we enter at once through the beautiful Propylæa, upon a wonderful architectural display. To the left as we enter upon the Plaza is the grand corridor filled with most excellent models of Grecian statuary, and directly before you the Electric Tower, designed as the grand centre piece of the magnificent group of buildings.

Passing this you are in the Esplanade where a hundred thousand people can be comfortably seated to watch the electrical illuminations at night.

Here you are in the midst of the grandest architectural display ever grouped together in the history of the world, simply passing all description. We show simply one of these structures, the Temple of Music, a place for thousands to rest and refresh themselves with sweet music of the first order.

But properly you should enter through the Park gates at the south, and approach the elegant park, with its spacious avenues, its stately towers, its beautiful lake with Casino and boat house, whence you may take a most delightful tour in electric launch about the grounds, a special treat when you are tired.

To the horticulturist this end of the grounds is especially attractive on account



FIG. 2139. PROPYLÆA.

The illustration herewith shows the western end of the Propylæa. This is an architectural ornament of very beautiful and imposing design. It marks the northern boundary of the Plaza, and is designed as a screen, separating the Exposition from the noise and smoke incident to the traffic of steam railways which pass the Exposition grounds upon the northern side. The Propylæa is 500 feet long with a massive towered entrance at each end.

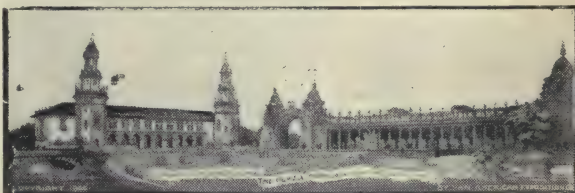


FIG. 2140. THE PLAZA.

The Plaza is an open space immediately north of the Electric Tower, and is 350 feet by 500 feet. On the east side is the large entrance building of the Stadium, and on the north the Propylæa, a section of which is shown in the illustration. On the west is the building for restaurant purposes forming also the eastern entrance to the Midway. The Midway is three-fifths of a mile long, giving more than a mile frontage and presenting the most interesting and wonderful collection of entertainment novelties ever brought together. There will be about thirty-five separate and distinct features, some of them very large, occupying several acres. The aggregate cost of the Midway attractions is estimated at \$3,000,000, which alone is more than the cost of some of the large expositions.



FIG. 2141. ELECTRIC TOWER.

Rising to a height of 391 feet, the Electric Tower is the first object on the Pan-American Exposition grounds to command attention. It is designed to be the centre-piece of the Exposition. Its entire exterior is richly moulded work and numerous costly groups of sculpture will adorn it. From a niche in its southern face will gush a cascade 30 feet wide and 70 feet high. From an observation point far up in the Tower the spray of Niagara Falls may be seen.

of the landscape effects, and the beautiful gardening carried out by Mr. Wm. Scott, superintendent of horticulture, whose success in the planting of trees, shrubs and plants, as designed by the landscape architect, is most creditable. When addressing the Convention of the

NATIONAL LEAGUE OF CIVIC IMPROVEMENT, which was held in Buffalo on the 12th, Mr. Scott said: "These grounds, now so beautiful, were formerly the flattest in western New York, and heavy clay loam at that; but, as the old saying runs,

'An oak, a rose, and a shrubbery,
Should be planted in clay.'

And this rule applies to many other things."

OTHER GRAND COLLECTIONS.—The rose garden is grand; one bed alone consists

of 500 plants of Ulrich Brunner, with a fine display of bloom. Mr. Scott cut these down to within two inches of the ground, and when at their best he could have cut 4,000 blooms a day. The collection of aquatics near the Manufactures Building, and of hardy perennials near the United States Building, are also magnificent. One bed of the new Giant Purple Coneflower (*Rudbeckia purpurea*), especially attracted our attention, and we thought it would be a good plant to distribute in 1902, since we have given the Golden Glow (*Rudbeckia aurea*, *flore pleno*) in a previous season.

OUR ONTARIO FRUIT DISPLAY keeps good pace with other exhibitors. On the 15th of August seven varieties of peaches and ten of plums were on exhibition, and Mr. Bunting reported that fruit had been sent in quite freely from the counties of Essex, Kent,



FIG. 2142. TEMPLE OF MUSIC—MAIN ENTRANCE.

The main entrance to the magnificent Temple of Music in the Pan-American Exposition grounds is through the pavilion at the corner of the Esplanade and the Court of Fountains. The building occupies a site 150 feet square. It is a place of entertainment rather than for exhibition purposes, the exhibition of musical instruments in general being in the Manufactures Building.



FIG. 2143. TEMPLE OF MUSIC—MAIN ENTRANCE FROM AUDITORIUM.

One of the most fascinating sights imaginable is the main entrance to the Temple of Music from the auditorium. The architects and decorators have made the best of a very happy subject here, and the picture will linger long in the minds of those who view it.

Prince Edward, and the districts about Burlington, Fruitland, Grimsby, St. Catharines, Queenston and St. Davids.

Prof. Hutt, of the Ontario Agricultural College, had sent in what we consider the best exhibit of bottled strawberries ever put up. They were all select berries, mounted on sticks, so as to fill the bottles, and kept in formalin, the best antiseptic for dark colored fruits. There were forty-four varieties. He also showed twenty-five varieties of raspberries and a collection of currants in glass.

Mr. Morris, of Fonthill, has continued an excellent display of roses, gloxinias, and other cut flowers, and Mr. H. H. Groff, of Simcoe, a fine collection of his hybrid gladioli.

Mr. J. DeW. Randall, of Niagara-on-the-Lake, showed two plates of ripe figs, grown out of doors.

Of the cold storage apples stored in Buffalo for the exhibit, there are still about fifty cases in reserve. On the 31st August ten cases of ten varieties were opened and eighty-three per cent. were still sound, a good record for so late in summer. The varieties were King, Blenheim, Spy and Spitzenberg.

Of the special fruits shown Aug. 15th we noticed Climax plum from Jas. Titterington, St. Catharines, so far the earliest good, large, Japan variety; fine Lawson pears from Mr. Lowry and Mr. Collinson, St. Catharines; Ogon from A. W. Peart, Burlington; magnificent Alexander peaches from J. W. Brennan, Grimsby, and perfect Early Harvest apples, large in size and clean of scab and worm, from W. H. Dempsey, Trenton.

On the same day a fine exhibit of pears and other fruits came in from the Burlington Horticultural Society, but not in time for us to get full notes of their excellence.

Japan plums seem to be the most promin-



FIG. 2144. LAKE IN THE PAN-AMERICAN GROUNDS.

Within the Exposition grounds are 133 acres of Delaware Park, including the Park Lake. This lake is a very beautiful body of water, and upon its shores the United States Government will erect a life-saving station, where a crew of ten men will give daily exhibitions during the Exposition season showing the uses of life-saving apparatus.



FIG. 2145. CASINO AND BOATHOUSE.

The new Casino and Boathouse on the south bank of Delaware Park Lake is a very picturesque structure. It is three stories high, the first being built of limestone and the other of white brick. Over the first story is a loggia. This building contains a restaurant, a lounging room, amusement halls, and a place for the storage of boats. It was built by the City of Buffalo at a cost of \$30,000.

ent new fruit in several of the state collections. In the New York State exhibit we noticed, (August 15th), Clyman, Marianna, Wild Goose, Kerr, Ogon, Paul's Early (very dark purple) and Red June, the two latter shown by Mr. S. D. Willard. Climax and Shiro were shown by Cornell University, the former measured about $2 \times 1\frac{3}{4}$ inches, color a deep red, and Shiro about $1\frac{1}{4} \times 1\frac{1}{2}$, color yellow. In the measurements the first is the length, the second the breadth.

The most interesting exhibit of these plums was made by Mr. Theodore Williams of Benson, Nebraska, in the exhibit of that state. This gentleman has produced over 200 varieties of plums (mostly Americana hybrids) during the past twelve years, all at his own expense. His aim is to produce hardy and productive varieties for northern sections. Only recently has the importance of his work been recognized by the state, and his productions are only now being brought into public notice. Forty varieties were shown, of which we noticed and tested.

Zee, (Cheney \times Botan) which bore a full crop after the severe winter of 1899, proving it to be both hardy and production. It is sweet and agreeable. Early Americana (Wild Goose \times Sand Cherry); Goosfine, (Wild Goose Seedling) sweet and good; Summertint, (Botan \times Cheney) healthy and hardy; colors and cooks well before it is ripe.

Two apricots were also shown which were claimed to be very profitable, viz., Sweletta and Nectarine, varieties which ripen between the 16th and 30th of July and have endured a temperature of 30° below zero.

The Rathbun blackberry was shown August 15th along with Wilson's Early in the New York State exhibit, and certainly it appears to be a marvellous berry. The samples measured fully one and a half inches long by one broad, and would be very captivating in a market.

The New Chautauqua blackberry was also shown in this exhibit, a small berry, not very attractive, but said to produce the immense yield of 18,000 quarts per acre.

Simon's plum, quite ripe; Red June, small,



FIG. 2146. THE BRIDGE OF THE THREE AMERICAS.

The new granite bridge over the neck separating the Park Lake from the North Bay in Delaware Park was built by the City of Buffalo at a cost of \$30,000. It is 138 feet long, with a roadway 53 feet in width, and two footpaths, each 11 feet wide. It is in the form of three arches. For the purpose of the Exposition each of the Americas is represented by an arch, and it has been given the name of the Bridge of the Three Americas.


ripe ; and Burbank, small and immature, a few of them colored, were also shown.

The Chenango strawberry apple was one of the chief varieties shown by Illinois. Though a little early, a good many of them were well colored. This Sops of Wine (ripe, small, striped with red), and Benoni (yellow, striped with red), and Transparent were the

other kinds of this season shown by this state. They say they have 500,000 acres of apple orchard in Illinois, and the principal market apples are Ben Davis and Willow Twig.

The Greensboro peach was shown, by Connecticut and a very fine sample ; Triumph was shown also but was immature.

OUR APPLES AT GLASGOW.

IR,—You will probably like to know how the fruit sent to Glasgow for the exhibition turned out, and in answer to your supposed question I may say that the fruit is the most warmly admired of the exhibits in the Canadian pavilion, and had I been in a position to do it, I might easily have sold 10,000 cases at a high price, 16 to 18 shillings. The splendid keeping of some of the varieties surprise me. If I tell you that the Mann, Ben Davis, Spy, King, Baldwin, Red Russet, Fallawater, Cranberry Pippin, Canada Red, Swazie, Coopers Market, Rox Russett, Golden Russett, Spitzenberg, Seek, American Pippin, etc., kept well, you will not be surprised, but you probably will be surprised that Fameuse, Wealthy, Blenheim Orange, Pomme Grise, Ribston, Cox's Orange and even Gravenstein are sound and good, and all, except the last one, are eatable. By eatable I mean that they are still good in texture and flavor, and the Spy, Baldwin, King, Cranberry Pippin, Red Russett, Spitzenberg, Seek, Swazie, are superb, they could not—at least hardly—be better. This show has given Canadian apples a fillip, and you may expect Scotch and English people, after this to look for Canadian apples in July and to be willing to pay a good price for them. One of the large dealers here told me the other day that he early discovered the value of the

Mann as a keeper, and took every lot that he could lay his hands upon, and kept them till other apples had disappeared when he easily sold them at 35 shillings per barrel. This was quite a large profit on fruit bought at from 10 to 14 shillings per barrel.

Let me tell you (a dead secret) that there's all the difference in the world in the different methods of packing, to set fruit forward for exhibition or for sale. The well packed fruit is a picture. I have taken pains to let visitors see it being unpacked, and have let them handle it too, aye and smell it, and even taste it, and as they see it turn out without a bruise, and smelling so fresh, and tasting so nice, so crisp, and juicy, they have asked in wonderment, "How is it that we never get such good American apples? And are told, that, these are *Canadian apples!*"

The public is delighted with the box system of packing apples, especially with the Dymment case. There is no fault found with the Grimsby case, but the fruit turns out more beautiful from the other. Many a time has a visitor said "Man I'd gie a saxpense for ane o thae aiples," on seeing the cases opened.

The advantage of the case is that any fruit that is put into it in good condition, turns out equally good. There is absolutely nothing lost; crispness, juiciness and flavor, all are there, with an added mellowness. I

am particularly impressed with the superior quality of the Spy; it has always seemed to me that they were liable to take on some extraneous flavor, sometimes like a mouldy flavor, sometimes earthy or woody. These are simply perfect. The Scotch rave about the Newton pippin, the English declare the Blenheim Orange perfect, but in almost every case, when they have sampled them without knowing the variety, their choice fell on the Spy.

Now that the cold storage is so nearly perfect and that last season and this have demonstrated that fruit may be kept for several months without losing their good qualities, growers and shippers might well pack and place in cold storage, a considerable quantity of their best fruit to hold over for sale in June and July, when prices are very high.

In order to take advantage of the high

prices at that date, the following data would need to be remembered, viz.: (1) That every handling injures apples, and that consequently the fruit should be packed as soon as gathered; one handling should suffice. (2) That every bruise on the fruit, however slight, hastens its decay. Cold storage delays the decay, but does not completely arrest it. (3) That time, labor and valuable space, are wasted in the effort to make anything of bruised apples that may go into a cold storage package. (4) That only one size of fruit should be put into a case, either No. 1 or extra. A slightly smaller size would not be an objection if they were very uniform in size. (5) That there are good men into whose hands alone this fine fruit should be placed, who will endeavor to maintain the reputation of the grower or shipper for their own advantage.

R. HAMILTON.

MEN AND WOMEN GARDENERS.—There are about three sections of labor at which I can never fancy a woman to be employed, and these are as engine-drivers, gardeners, or jolly jack tars. The middle section of these divisions of employment, has, however, become blessed with the sunshine of her presence. There can be no dull days now in our gardens with "Woman in her loveliness, presentiment of Paradise" as its caretaker and director of works. From stories which are going the rounds, it would seem that women as gardeners are highly successful. A woman has been appointed head gardener to a demesne of the Marquis of Bute. No doubt after this the Marquis will discover men gardeners an anomaly, and may invent a substitution to conscription in the enrollment of the "anomaly" into the army.

Capital! bless the lady gardeners. No more shall we be under the dominancy of fouzled old cabbagers, who can grow nothing better than greenflies or toadstools, when by the bounty of Providence a few Doyenné du Comice Pears, or a truss of Crimson Rambler roses do appear, they nobly guard the heritage from high Heaven sent, vowing execrations upon the head of master or mistress who dares do more than admire them without his kind permission. According to a cutting sent us by a reader, the above story has an actual foundation and real enactment. A lady had an old Scotch gardener who could grow nothing for her, or when a bloom or fruit was to hand he so grudged her having it, that in his place she substituted an "Eve" and now she sings "Corn in Egypt" all day long!



FIG. 2147. RESIDENCE OF MR. W. W. HILLBORN.

FARMERS' RALLY AT LEAMINGTON.

A SUCCESSFUL Farmer's meeting was held at Inglewood the home of Mr. W.W. Hillborn, Leamington, on Friday the 12th instant, when that gentleman gave a list of desirable varieties of peaches which he had fruited and which ripened their fruit at such times as would make a succession throughout the season. Among the newer varieties tested Bronson is a good yellow peach ripening about with the late Crawford. Banner is a variety ripening latter part of the season about the same time as the Smock but a better quality, and a better peach apparently in every respect. Crane's Yellow is a seedling of Yellow St. John and supposed to be an improvement on that old standard variety. It ripens a week earlier than Early Crawford. Crosby is a good market variety very productive; the tree is hardy and when young it bears fruit large and of a very fine quality,

but when old it is liable to overbear and the fruit deteriorates in size unless it is well thinned and the tree given good cultivation. Engols' Mammoth ripens about mid season, is of the Crawford type, thoroughly hardy and productive and one of the most promising thus far tested for either home use or market. Elberta, a fine large fruit with good market qualities but the tree is not so vigorous as desirable. It is more subject than other varieties to leaf curl. It ripens about mid season. Fitzgerald is a peach of the Crawford type, of better color and quality and hardier both as to tree and fruit buds. Garfield is a little earlier than Fitzgerald or Early Crawford and one of the finest market peaches on the list of the Early Crawford type and apparently an improvement on that old standard sort. Golden Drop is a medium sized fruit, bright yellow, and fine canning qualities. The tree is very hardy and

productive, one of the best in these respects of any of the market varieties. Ripens latter part of September. Kalamazoo is a peach that ripens late in the season. The tree is hardy and productive and a good market sort. Namaper, the fruit of this variety is almost identical with Elberta. The tree is more hardy and productive and ripens its fruit a few days later than Elberta. It is not subject to leaf curl and is one of the most valuable market sorts. Triumph is the first yellow flesh peach to ripen. It is a good sized variety of fair quality. Tree hardy and productive, an improvement on the early varieties hitherto grown. Yellow Rare Ripe ripens just after Early Crawford. Is a little darker in color and larger in size. A good market sort. This completes the list of good varieties.

It is well to notice a few failures. Bokhara is a variety sent out from Iowa. It was described as a good yellow fleshed market sort and highly recommended. I have obtained it from three different sources. In every case it is a small white fleshed late ripening peach of no value. Greensboro is being boomed. I find it a variety of poor quality and not equal to Alexander and ripens later. I have three trees of it and that is three too many. Oscar's Black Prince has been sent out with a great flourish of trumpets. It has no special market qualities. Wheatland is an older variety. It has done well in some places but in this part of the country it is of no value.

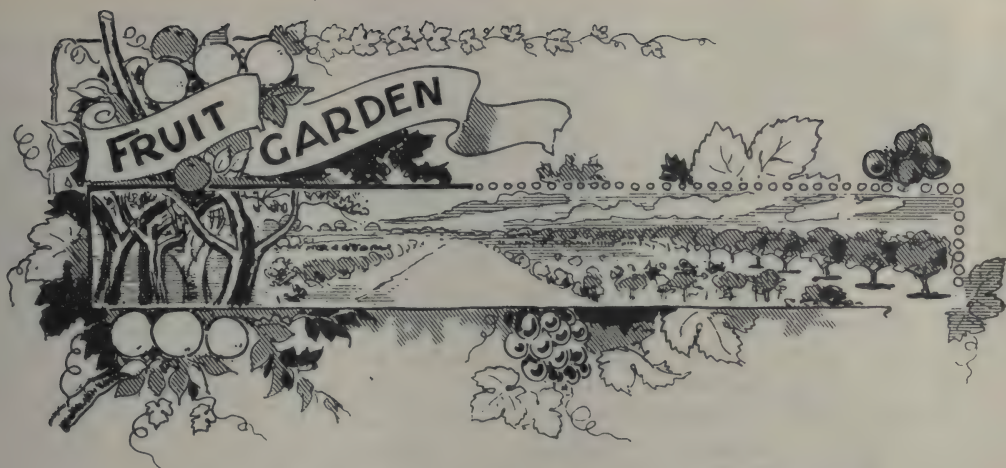
Mr. Hillborn also discussed grapes and plums. Grapes and Japan plums had lat-

terly been added to peaches as the specialty to be studied at this station. Of Japan plums he has 20 varieties of which he has fruited quite a number. He feels doubtful of the Japan plums ever being equal to the European varieties in quality. As fruit becomes plentiful a better quality is in demand and Japan plums will never meet this demand. Some varieties will no doubt have a place in commercial orchard but he cautioned people against planting them too freely until they have been more fully tested. The Willard is a good seller but the buyer will hardly ever buy the second time. Among the varieties thus far tested the Burbank is most profitable. Satsuma is the best coming variety but its color is against it for canning purposes. Among European varieties of recent introduction the Monarch is one of the promising market varieties, of dark purple color, large size, and finest canning qualities. The tree begins to bear young and is very productive. In grapes he mentioned Campbell's Early as a promising recent introduction. The fruit is dark purple, of large size, and parts from the seed without leaving the acidity or taste which most varieties do. It has the very best shipping qualities and gives evidence of being just the grape wanted for the old country market. Moore's Diamond is the best early white grape thus far tested for family use.

The Windsor is the best of the dark colored sweet cherries thus far tested. Of the light colored cherries he had found none better than the Yellow Spanish and Napoleon.

THE MERCERON GRAPE was grown in 1893 from a cross between Wilder and Concord by Mr. F. E. Merceron, of Catawissa, Pennsylvania. The R. N. Y. describes the bunches as very large, with double shoulder.

The berries were large in proportion, deep black in color, with light blue bloom. The flavor was sweet and sprightly, the pulp separating well from the few seeds with no unpleasant astringency.



GOOD FRUITS FOR SIMCOE FRUIT GROWERS—I.

THIS year would seem to emphasize the fact that it is not advisable for Fruit Growers to put all their eggs in one basket. While some kinds of fruit have done fairly well, others are nearly a failure, and my experience is, that we scarcely ever get a full crop of every variety of fruit in any one year. The past winter was a favorable one in this locality, the lowest temperature recorded being 20 below zero, and everything came through in good condition. Even the apricots came out with some live fruit buds and bore a little fruit this year. These form plenty of fruit buds, but when the temperature goes down lower than 20 below they usually perish. I believe this fruit will not succeed well far outside the peach belt.

The Cuthbert raspberries suffered most by winter killing, far more than usual. However that is easily understood. The fine autumn of last year kept them growing too late. They were still green when the snow came, and they were in no condition to withstand the cold of winter. Apples promised a great crop at one time; there was an abundant bloom, but a cold east rain set in just when the bloom was at its best, and continued for some time, and

although the apples set, yet they seem to lack vitality and kept dropping all through the hot dry weather of June and July. The Spys and Ben Davis however have done better and are the only varieties that promise more than half a crop. These varieties bloom late and so escape the cold rain and bad weather that played havoc with the other varieties. Plums and cherries have done well. They bloomed in fine bright warm weather, the blossoms were not injured at all, and there was a fine crop of cherries of the very best quality and plum trees are heavily loaded.

Strawberries had an enormous bloom and set a big crop, but it was shortened very much by the dry hot weather toward the close of the season.

Raspberries were the nearest to a total failure in all my experience of growing them. The intense heat and drouth simply dried them up. But the rain came and the drouth was broken in time to save the blackberries, and they are doing well. My favorites are the Agawam and Eldorado; I have a fine crop on both of these varieties of the very best quality, and they are selling like hot cakes at 10 cents per box, which is a satisfactory price. And now for a few notes on

varieties that have fruited this year, and as one of my specialties is cherries, I will take them first. I believe the soil here is peculiarly adapted for cherries. Wild cherries grow in abundance wherever they get a chance, and the improved varieties seem to have found a congenial soil and locality. Most of the varieties are Russian with the exception of Vladimir, all that have fruited are good canning varieties. The following varieties have given good satisfaction, Ostheim, Orel 24, Bessarabian, Griotte Du Nord, Brusseler Braun, Dyehouse, English Morello, Wragg and Russian 207, Ostheim and Orel 24 are black when ripe and are the best in point of quality. Two varieties of sweet cherries bore a few specimens. One that came here under the name of Love Apple (rather a queer name for a cherry) is a large meaty red cherry of very choice quality. The other is Oranian Kirsch, a large yellow variety, very fine flavor. I have always considered sweet cherries as very uncertain outside the Peach belt. I tried several of them many years ago and they were a failure, but these two are, so far, healthy and vigorous, and it is just possible we have in these two varieties something hardy that will succeed, where others have failed, and the quality can hardly be excelled. However the demand is chiefly for a good canning cherry, and of these I have tested in all 12 varieties this year, and they have given the very best satisfaction. The only trouble was that I could not supply the demand. The trees are healthy and vigorous. They have had of course good care and culture, and have

given good results, and I may say as a result of my experience so far, that I am highly pleased with the cherries. I have had little or no trouble with black knot although there is enough of it in the neighborhood, in old orchards and gardens, to seed a whole township. I believe that if the surface of the bark is well covered with Bordeaux in the spring when the trees are bare there will be little trouble with Black Knot. It is very effective as a preventive. I have twelve varieties put up in glass for the Industrial which will give a very fair idea of the size and appearance of those fruited this year.

This is a great year for plums. The Japan Plums are well loaded, Early Botan ripened with the late cherries in July. It is a small plum, but of good quality. We are now picking Willard and Red June, August 12th, and they are very fine. The Ogan, a large yellow plum is also ripe at this date. Abundance will be ripe in few days, and Burbank will be close after it. Willard is somewhat dry in the flesh but is a fairly good canner. Plum rot is in evidence this year, but it does not seem to affect the Japan varieties. Guii and Monarch are the most affected. The latter is a new variety, very late and of good quality, but so susceptible is it to rot, that although bearing well it will not mature more than half its fruit. Bordeaux mixture does not seem to control this disease, only to a small extent, and there is need for a good deal of experimental work in treating it.

G. C. CASTON,

Craighurst, Ont. Simcoe Fruit Station.

CALIFORNIA APPLES.—Last year's shipments of apples from the famous Pajaro Valley, where the matchless Newton Pippins are grown, amounted to 1,000 cars of which 650 cars came east of the Rocky Mountains, the rest going to

nearby points. Two hundred and fifty carloads of Newton Pippins were shipped, of which 220 cars were sent to Europe, and thirty cars to the middle-west. The foreign shipments were some 40,000 boxes less than in the year before. Pajaro Valley apples are

packed in boxes for shipment. Newton Pippins average about 665 boxes to the car, and Bellfleurs about 700 boxes.

It is too early to give full estimates for the present season, but the crop, it is believed, will be largely in excess of last year's crop, and as the orchards fared very well, the average of quality should run very high.

While Pajaro Valley is the best known apple district of California apples of the

highest quality are grown in almost every county in the State. Altitude is what determines largely the requisite conditions. In Southern California, Lompoc, Julian and Yucaipe are well known apple districts. Stanislaus, Solano, Sonoma, Humbolt, Mendocino, Santa Cruz and Monterey are northern counties in which apples are grown of excellent quality.—*Fruit Trade Journal*.

STOCK IN THE ORCHARD.

A GAIN IN THE FRUIT CROP AND NO EXPENSE FOR CULTIVATION.

I AM very sure that I am right in advising the pasturing of apple orchards with hogs and sheep, writes J. S. Woodward, in the Rural New Yorker. If people will only read carefully what I write and follow my advice they can raise high-colored, fine-grained, and well flavored fruit, freest from insects, that will keep longest and in best condition, and raise it at least expense. But they must not misunderstand me. I do not advise seeding an orchard, nor keeping it in sod. Simply stop cultivating, put in the sheep, and let the grass come in naturally if it comes at all. Don't think that ten sheep are enough for a ten-acre orchard, but put in ten or fifteen sheep to the acre, overstock so heavily as to compel you to feed and then feed enough to keep the sheep thriving, and feed with a view of feeding the orchard through the sheep.

To convince himself that I am right let any man fence off an acre of orchard, and put fifteen sheep into it, providing plenty of fresh, clean water for them at all times, and feed them fifteen pounds of wheat bran a day. Keep the sheep there until the apples are fit for market, no matter if they do eat a few fallen ones, and all they can reach from lower part of the trees; there will be just as many when it comes to

picking time. Just watch and see how soon the trees will take on a cloak of green color, thick and vigorous, and how hard and stocky the wood will become; how firm and highly-colored the fruit will be, far beyond the part kept in constant cultivation. While this amount of bran will make the sheep thrive better in any pasture, however good it may be, they will eat the grass to the very roots, eat all sprouts from about the roots, and take every fallen apple long before the codling maggot can escape, and their constant trampling under the trees will break up the surface, and in a great measure conserve the moisture for the use of the trees.

If fifteen sheep be kept on an acre and they be fed fifteen pounds of wheat bran a day for seven months—the length of time they may be kept in the orchard before and after the crop is picked—they will feed 3,150 pounds of bran, which will contain:

	Pounds.
Potash.....	51
Phosphoric Acid.....	102
Nitrogen.....	33

If the sheep are mature very nearly all this will be scattered under the trees, which will be far more than will be taken in the largest crop of apples.

PRUNING FRUIT TREES.

AFTER studying European methods I am convinced that the pruning at present practiced in most American orchards is quite inadequate and accomplishes but a fraction of the results that may be gained from pruning.

The pruning problem is simplified somewhat, by comparing the fruit tree with a grapevine pruned by the old-fashioned "spur and arm" system, in which the grapes are borne on shoots that grow from spurs located on permanent arms. The main branches of the fruit tree correspond to a degree with the arms of the vine, with this difference, that the branches of the tree are strong enough to support themselves, and they grow from the trunk in all directions instead of only in two directions, as in the vine. These main branches should be nearly equidistant upon the trunk; they should be arranged about the trunk in a more or less spiral form, and should grow out at such an angle as to admit the sunlight during some part of the day to their whole length—an angle of about 45 degrees in our climate. In young trees they should bear fruit upon their whole length, and not at their outer extremes only, as is commonly the case with orchard trees. At some distance from the trunk they should branch horizontally, but not upward or downward. The branches should be so pruned during the growth season as to maintain their direction and position, and to secure the proper amount of new wood upon all their parts.

This will have to be accomplished largely by pinching the shoots that are permitted to grow, and by the suppression of superfluous ones. As the trees attain age the basal portion of the main branch will generally cease to support fruiting wood, but the side branches should be removed, as they lose their vigor or become overgrown, by training out new

ones to take their places. The fruit spurs, in species in which the fruit is borne on spurs, will also be frequently renewed to maintain their vigor and to enable them to produce fruit of the largest size. The trees will be headed low and will generally be kept in the pyramidal form. The formation of flower buds will be controlled by judicious pinching of the new growth; and except when damaged by winter-killing the crop of flower buds will be comparatively constant from year to year; and since these have received the required nourishment and sunlight, they will be robust and hardy and will rarely fail to develop fruit of choice quality. Overbearing will be unknown, and as the fruit will average of superior grade it will always sell for a first-class price. European methods have repeatedly shown the practicability of growing the choicest fruit by a method of pruning similar to this. By this method the pruning will be almost all performed during the growing season.

As the growth is maintained at all times under a wholesome check, the trees will grow slowly, and never attain the large size that they reach under present methods. They may therefore be more closely planted and the dwarfed stocks for fruit trees will come into more general use. Pruning will come to be recognized as a "trade" for which special training is required.

I am aware that this teaching is "out of due time" in a country where the average orchard is uncultivated, unsprayed, and unpruned except spasmodically, and then pruned with the ax or carpenter's saw. But with our rapidly increasing population, wealth and business competition, a change in fruit-growing methods is inevitable. America is destined to head the world in fruit production and in fruit-producing methods, and these methods must be largely developed at home.

Since present methods are far from satisfactory, we are justified in seeking better ones.

Granting that the plan proposed in this article is practicable, will it pay to grow fruit by it? Yes, so long as there is "room at the top." Choice apples are now selling in the Madison market at from \$4 to \$6 per

barrel, and are scarce at these prices. They are quoted at \$3 to \$5 per barrel in New York.

A method that tends to insure a crop of fruit of superior quality every year will certainly prove profitable, even if it does require increased labor.

E. S. GOFF, *American Garden.*

A GOOD FRUIT GRADER.

SOME of our enterprising fruit growers at Grimsby have imported a grader for peach, plums and apples, which has given excellent satisfaction. It is called "Jones" adjustable peach, apricot and plum assorter, and was patented in 1890.

We give a cut of this grader, because of its merit, and we think that it is built on the right plan for doing excellent and speedy work. The introducer says of it:—

The object of the assorter is to save labor and to prepare the fruit properly for market

may be stopped off if it is desired to make fewer than the number the machine represents.

They are provided with canvas pockets or exits which receive the fruit from the rollers and deliver it into boxes or baskets without the slightest bruising.

It is hardly necessary, in this circular, to describe in fuller detail the mechanism of the Jones' graders. The cut gives a clear idea of their construction, and, being so universally used in fruit growing districts, their usefulness is well known.

Eastern growers will usually find that my No. 2 and No. 3 assorters have ample capacity for their wants. No. 2 has as great capacity as three-fourths of Eastern peach growers will require, and I am safe in saying that few will ever need a larger size machine than No. 3. With the assistance of two boys, I have operated No. 3 behind 25 pickers (when the trees were loaded) and they could not keep the machine running over half the time. In fact, if the peaches run fair, no one person can set back the baskets from No. 3 as fast as it will grade them, and a man will *earn* every cent he gets attending the spouts of No. 2. I have seen this demonstrated even when women were operating the machine. When the fruit runs bad, the one who pours in should always assist the operator to throw out the *soft* and *specked*. The *defective* is easily detected as the fruit spreads out and turns over on the



FIG. 2148. A FRUIT GRADER.

by separating it into sizes. This they do to perfection and much more accurately and with greater rapidity than can possibly be done by hand. All my machines are models of simplicity, accuracy and durability. The rollers are made of solid rolled steel and cannot spring out of shape. They are thoroughly adjustable and are set by a numbered gauge. Any given size or sizes

assorting table in front of the operator—the *good* passing on to the rollers to be graded. This accounts for the great rapidity of the machine's work.

With the number of peach districts, and trees that have come into bearing, the day has passed for imperfectly culled peaches to

command remunerative prices in our city markets.

To assort them by hand is slow, unsatisfactory and expensive. A machine will more than pay for itself in a single season, and will, with proper care, last twice the life of any peach orchard.

COLD STORAGE FOR THE FRUIT GROWER.

IN a recent press bulletin of the New Hampshire College Agricultural Experiment Station Prof. F. Wm. Rane writes: "The growing of good fruit is a worthy problem, but another equally as important is in being able to obtain sufficient inducement for enthusiastic future efforts.

"In seasons like the present, with its abundant crop of apples, what is best to do with one's fruit—sell at the present low market price or arrange to hold it for future advance? This question appeals to everyone who has apples for sale. To sell the fruit at picking time necessitates little competition; hence low prices and little responsibility. To keep the fruit for higher prices is problematical in that it costs for storage buildings and there is liability of loss from shrinkage and decay; also extra expense in handling, danger from freezing in transportation, etc.

"From the nature of the case everyone's conditions vary more or less and the problem is for the individual to settle. That cold storage of some form is a blessing is readily recognized. We have had in recent years fruits of all kinds out of season and at prices within the reach of most people. The economic problem is not to secure a high price for a small quantity but an average price for a large quantity.

"Not many years since we depended almost entirely upon the house cellar for tiding over a glutted market, and when there was a slump on the market much of the produce

rotted in the hands of the producer. A certain few, however, even solved the problem by proper handling, packing, ventilating their cellars, etc.; and they invariably received fair returns for so doing. New methods of storage have developed rapidly within a short time. At present every city of note has its commercial cold storage plant and producers as well as commission men are offered equal opportunities for rental. Apples, for example, are stored usually for about the following rates: Ten cents per barrel per month, or for the season, ending May 1, 35 to 50 cents. The season's rate includes from September until the following May 1. The rate after that time is ten cents per barrel per month or fractional part thereof.

"The cold temperature in these commercial houses is obtained through compression, absorption and air machines, and the freezing mixtures from the combination of ice and salt. The advantages of storage near markets are in being able to sell at short notice and in having one's fruit well cared for. This is worth consideration by all growers. Not all cold storage houses are successful in giving good results. This may be the fault of the company in not keeping a regular temperature, etc., due to poorly constructed buildings or unskilled labor; but it may be due to lack of proper attention in picking, packing, etc., before the fruit reaches the plant. One must understand that cold storage will simply retard and not prevent entirely the spread of decay. Therefore, if the

fruit is in prime condition on entering, it is likely to come out in proportionately as good condition. Cold storage never makes an ill-shaped apple uniform, an unsound fruit sound, a wormy apple perfect, or a pale, sickly, immature fruit bright colored. The apple cannot be expected to increase in size, or overcome the rough, careless treatment it perchance may have received before going in. It is for the interest of both parties concerned to get good results; therefore familiarize yourselves with each other's conditions before venturing. The Experiment Station has been experimenting along various lines of cold storage and hopes ultimately to give more complete details of results.

"Within the frost belt ice is the common means of cold storage, especially for domestic and general trade purposes." This is true of New England, where it is shown that ice can be cut and hauled a mile for twenty-five cents a ton. A small ice and cold storage building can be cheaply constructed and cannot be too highly recommended. Temporary structures can be made very cheaply, but it is far better to build permanently, as it will be far more satisfactory. Stone walls will make ideal houses and New England need not want for these.

"Another kind of storage which for convenience we may call 'climate cold storage,' consists in studying and husbanding the lowest daily temperature of one's climate to do one's bidding. There are few days from now on until late in spring in New England, for instance, but that the temperature falls at some time sufficiently to utilize it for cold storage. Being prepared to retain this temperature in cellars or buildings constructed for the purpose, until a similar or lower temperature is realized, is the key to success. This system is not offered to take the place of the other systems mentioned but to meet an apparent need in rural districts. The ordinary house cellar or portion of a barn cellar will answer for storage room, if the simple principles of construction for the retention of cold air as well as a proper system of ventilation are considered.

With few exceptions the city cold storage is probably better for large quantities of fruit for the open market; but when fruit is grown for home use or for the local market, home cold storage is advisable. That cold storage, if properly handled, is practicable and profitable for the fruit grower, there can be no question.—*American Garden.*

APPLE REPORT.

SUMMER apples have been selling in our home markets during the month of August at from twenty-five to fifty cents a basket, according to quality.

The prospect is that prices for good winter apples will be very high, as the crop is a light one, not only on the American continent, but also throughout Europe.

The following report by Messrs. Woodall & Co., Liverpool, dated August, 1901, is of interest to apple growers :

We beg to hand you the Annual Report of the Apple Crop of the United Kingdom for 1901. The

figures show that the crop is a small one, but of very good quality, viz.:

	Over Average.	Average.	Under Average.
This year.....	15	90	163 Reports.
Last year.....	148	138	16 "
Year 1899.....	20	137	137 "
Year 1898.....	42	150	139 "

The imports from the United States and Canada during the past season, 1900-1901, although a slight increase, are only moderate, making the fourth consecutive season in which the crop has proved a partial failure, the total imports being 1,300,000 barrels, as compared with 1,192,000 barrels in the previous year. The quality, generally, was satisfactory, and the result of the season's must compare very favorably with that of the preceding one. There was a considerably increased quantity from Boston and Maine, the latter especially maintaining their position for excellence

of quality. Canadian fruit also showed a great improvement on last year's poor crop, and it is pleasing to note that there has been a greatly reduced quantity of false packed barrels. A feature of the business has been the increased quantity of Californian apples, amounting to 61,600 boxes, which for purposes of statistics are reckoned at three to the barrel. The cause has doubtless been the moderate supplies of Pippins from the usual sources, but whether they could stand the heavy cost of carriage in a season of plenty remains to be seen.

As shown above, the English crop is the reverse of last year, and promises to be small, and as reports from Canada and the United States are to the same effect, the prospects are for a high range of prices. This, of course, is for fruit of good sound quality and condition, as no amount of scarcity will produce high prices for inferior stock, and it will be well for shippers to bear this in mind, as the shrinkage of a crop is generally caused by atmospheric conditions unfavorable to the development and keeping quality of the fruit.

Reports from the chief Continental growing districts point to a very light yield.

The total imports into Great Britain during the

past season from United States, Canada, and Nova Scotia were as follows:

Liverpool.....	813,338 barrels
Other Ports.....	486,662 "

Total.....	1,300,000
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Against same period 1899/1900...	1,192,000 barrels
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" " " 1898/9 ...	1,160,000 "
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" " " 1897/8 ...	822,000 "
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In their chart of sales of Baldwins, in Liverpool, during the last five years, we notice that Canadian stock has each season brought the highest prices, alongside of stock from the States of New York, Maine, and from the port of Boston. Usually the best prices all round are obtained in the Months of March and April.

In April, 1898, they reached 25/, in April, 1899, 24/, in March, 1900, 23/ 6d, and in April, 1901, 22/.

FALL TREATMENT OF PEAR BLIGHT.

IN those orchards where the blight has been carefully and persistently removed and destroyed most of the trees have been saved. In some instances the cutting was not severe enough to remove all the blight-producing organisms, that is, the diseased branches were not cut far enough below the lowest discolored point on the bark to remove the organisms and as a result the disease remains in the tree and continued its destructive work so long as soil and weather conditions are favorable.

At this season it will be observed that the blight is not spreading and the disease is not advancing even in the partially dead branches. It has been found however that the disease producing organisms although inactive during the fall and winter are not dead, that they are capable of living over the winter if the diseased branches have not been removed from the trees. As soon as the sap begins to flow in the spring these organisms again become active and it is from these so-called hold-over cases that the blight is spread. When the organisms become active

in the spring they find their way to the surface of the infested branches either through exuding of the sap or otherwise and are carried by the bees or wind to neighboring trees where they lodge and produce disease.

It is clear from these facts that have been determined by careful investigation that there is only one way in which to prevent an outbreak of this disease next season and that is by destroying all the organisms before the sap begins to flow in the spring. The only method by which this can be accomplished, so far as known at present, consists of cutting out and burning the affected branches. In many orchards where the blight was so destructive the past season it was found that little or no effort had been made to destroy this pest during the preceding season. While the blight was not so destructive generally in 1899, as in 1900, it was present in most orchards and in many isolated trees; hence where it was not cut out it accumulated and became more destructive during the past season.—*Small Fruit Grower.*

THE APPLE BUSINESS—I.

THE International Apple Shippers' Association met in convention in Toronto early last month. The Association represents seven-eighths of the commercial side of the apple industry of North America. The men composing the convention represent not only the apple export trade—the trade with Great Britain and Europe generally—but the local trade as well.

There was discussed at this convention not only matters relative to the transportation and marketing of fruit, but in regard to the care and cultivation of the orchards in which the fruit is grown. A more important gathering from the standpoint of the progressive farmers of Ontario has never been held in that city.

TRANSPORT AND MARKET.

Two of the principal subjects discussed were transportation and marketing—twin topics of vital interest. The first was first brought up by President Richardson in his opening address.

"The matter of transportation is," said that gentlemen, "of great importance to those engaged in this industry. The apple is no longer a luxury, but a necessity, and should be treated as such in fixing charges of transportation. Apples are given no better service in the way of accommodation during transportation than commodities which are carried at much lower rates. There should be a re-adjustment under which apples will be placed on the same basis in regard to freight charges as other merchantable articles."

Harry Dawson, of the Dawson Commission Company, mentioned a case that illustrated and emphasized the point made by the president. "There is no more trouble," said Mr. Dawson, "in carrying a barrel of

apples than there is in carrying a barrel of flour. The apples will weigh 160 to 180 lbs. and the flour 196 lbs. And yet I have known flour to be carried to Liverpool at 2s. 6d. when the rate on apples was 4s. 6d."

ACCOMMODATION ON SHIPBOARD.

In connection with this general subject, there came up, too, the special matter of providing proper accommodation for apples on shipboard. Some time ago U. S. steamship companies were urged to provide cold storage for shipment of apples, but the companies—as shown by the responses received—were inclined to look rather coldly on the proposal. They objected to provide such accommodation unless the shippers would contract to use it by the year. This assurance could hardly be given, as the apples season does not run through the whole year.

"And," said Mr. Shuttleworth of Brantford, "after a storage room has been used for apples for some time the place is so impregnated with the flavor of fruit that it is scarcely fit for the carriage of other commodities, such as butter, etc." Mr. Shuttleworth added that the Allan and Donaldson Lines were providing for the introduction of cold air into the parts of the ship in which apples were stored, and this would be a great improvement.

Mr. Foster added that lines sailing from New York were showing a disposition to provide better facilities. Three of them were putting in fans. "This improvement," said Mr. Foster, "is the result of action taken by our association, and shows the benefit of co-operation."

DR. MILLS ON APPLE PACKING AND APPLE BUYING.

The discussion in regard to marketing was really introduced by President Mills of

the Ontario Agricultural College, and a real live discussion it was—reminded one of the days when the late John Hallam, Garrett Frankland, and John Baxter crossed swords in the City Council of Toronto during the eighties.

"The buying of apples," said President Mills, "is too much like the buying of butter in old-fashioned country stores—an all-round price, regardless of quality. Buyers should discriminate. This is due to the man who produces the good fruit, and by discrimination there will be removed from buyers the temptation to make up in fraudulent packing for the losses incurred in the purchase of poor fruit. The packers employed should be capable and reliable—those who are not so should not be allowed to put up apples, either for home or foreign sale. We have suffered so much in reputation in England because of bad packing that it has been found necessary to appeal to the Dominion Parliament for an Act to prevent frauds in future. This appeal was not made because we wanted to crowd the honest men out of the business. The Parliament of the Dominion, in response to our appeal, has given us a measure that contains many admirable provisions. With one exception, it is an excellent Act. But the exception is a most important one—it is in the penal clause. The penalty provided for wrongdoing is so utterly paltry as to excite the surprise and incur the contempt of all honest men who have looked into the matter. Under the law as it stands a man may put good apples in the bottom, beauties at the top, and turnips or pumpkins in the middle, and label the whole treble X, and, on detection, and conviction, what do you think the penalty is? Is it \$100? Or \$50? Or \$25? No; it is just \$1. It is hardly that; the fine is not to exceed \$1 nor to be less than 25c. I have heard of the mountain laboring and bringing forth a mouse, but I never heard of anything that would beat that."

"But" put in William Dixon of Hamilton, "the fine is per package."

"True," responded the speaker, "but an offender is not likely to be caught on more than one package. It is too ridiculous to talk of. I wish I had been on the floor of Parliament when that measure was going through. Any scorn that was in me would have been poured out on those responsible for such legislation. The men who passed that Act did well to add \$300 or \$400 to their sessional indemnity after doing it!"

"I agree with you," heartily responded T. E. Dennis, representing W. Dennis & Son of London.

AN EFFECTIVE COMPARISON OF PENALTIES.

"Yes," the speaker went on, "we send a boy to the penitentiary for stealing a pair of boots, and we inflict a fine of not more than \$1 and not less than 25c on one guilty of a fraud like this. What malign influence was behind Parliament when it took up a whole page in saying what things shall not be done, and then wound up by saying that those who do commit the frauds—frauds that are discrediting all our products in the English markets—shall be fined not more than ONE DOLLAR. One dollar; it should be fifty dollars and two or three months' imprisonment."

WERE FRUIT GROWERS RESPONSIBLE?

"Why was the penalty fixed so low?" asked Mr. Dixon again. In answer to his own question, he said it was the growers rather than the buyers who wanted a loose and open measure. If the matter had been left to the dealers the law would have been made much more stringent. But most of the members of Parliament represented rural constituencies; it was in rural constituencies the frauds in packing occurred, and this was why the penal clause was made so mild.

"I would be sorry," said Mr. Hart of Montreal, "to have the impression go abroad

that any of our people have put pumpkins or straw in with their apples. I have had twenty-four years experience in this business and have never known anything of that kind to be done. I have seen some apples in barrels that should not have been there, but I defy anyone in England to say that any of our apple barrels have ever gone to the Old Country stuffed with hay or pumpkins."

"I did not say that had been done," replied President Mills, "although I have been told that a wad of hay was found in the middle of a barrel that reached England. What I did say was that these things might be done and still the penalty would not exceed one dollar."

SOME VERY QUEER CASES.

Eben James admitted that practically all the possibilities referred to by President Mills had occurred, but he blamed it on the farm boys. "Some of the latter," said Mr. James, "after the packers had gone for the night have put old boots or hay in a barrel, accompanied by a note, asking the English purchaser to write a reply saying how they liked their purchase. This was boys' idea of a practical joke."

Chas. Foster of New York gave another illustration showing the peculiar idea some people have of humor. "I once found a stone in one of my apple barrels," said that gentleman, "but as the barrel was labelled 'Rock Pippins' this did not seem so inappropriate."

M. Snetsinger of Thornbury also witnessed some rather strange things. "I remember," said he, "seeing a barrel, accidentally broken open at Portland, stuffed with hay to prevent injury to the fruit."

"Don't you think," asked Mr. Dennis, "it would have been better for the reputation of Canada if the whole of that particular barrel had been dumped into the sea?"

A LITTLE KANSAS SCHEME.

Secretary Barnes of the Kansas Horticult-

ural Society, mentioned another little fraud in the way of packing. This is what is called "stovepipe packing." Under this system a stovepipe is placed in the middle of a barrel when packing is going on. Good apples are put all around, the package thus showing a good face, no matter where the barrel is opened, while the center is filled with rubbish. The same sort of thing is done, he said, even in the shipping of potatoes in sacks.

"I would not," said President Mills again, "assert that all packers are dishonest; I would not even say pumpkins and turnips have been put up where good apples should have been. But there is a long range between a turnip and a good apple, and most certainly some of the contents of barrels sent from this country have been a discredit to Canada."

WHERE PACKERS HAVE COMMITTED FRAUDS.

Then Mayor Graham of Belleville, speaking from personal knowledge, showed that all the evils in connection with apple packing are not due either to the greed of fruit growers or a mistaken sense of humor. Some are attributed to deliberate fraud on the part of packers. "I have," said he, "seen packers who had what they called facers, followers, and fillers. You can judge for yourselves what part of the barrel the fillers went into. After the barrel was headed up these packers did not put their own name on the package. They put on the name of Jones or Smith—any old name, in fact—and then added the three X's. I think every shipper will bear me out that these practices have been resorted to, and it is because of such practices that the Act to which Dr. Mills has referred was passed."

"I believe," said F. Pritchard of Liverpool, "there has been a good deal of exaggeration in this matter. My experience teaches me that when we have a good crop we have good packing, and in seasons of poor crop the packing is indifferent."—*The Weekly Sun*.

MAKING HARDWOOD CUTTINGS.

WE have been making cuttings of currant, Carolina poplar, weigela, blackberry roots, etc. The next cuttings to go at will be grape, to be followed by Mariana plum.

Growing plants from cuttings of hardwood is easy or not easy, depending somewhat on the experience the propagator has had. I remember in the past that I have thrown away thousands of cuttings that I failed to make grow because I did not understand all the steps and conditions necessary to success. That was what I call hard work to grow cuttings. But now, after many years at the work it becomes easier each season to meet those conditions and to meet them easily without worrying.

One of the greatest mistakes I made in first growing hardwood cuttings was not sufficiently firming the soil close up to the lower part of the cutting. I thought if I got the surface of the soil firmed that was all that was necessary. But now I pay the first attention to firming the lower half of the cutting. For instance, if I am setting currant or grape cuttings on light soil I prefer to fill in around the cutting about one-half the distance from the bottom of the furrow to the surface of the ground; then with the feet press and crowd the soil tightly

around them, finishing filling up to within about an inch of the surface of the soil. Then firm again.

After the first cultivation in early spring level off the soil next to the cutting and firm again. This last firming helps to keep the air from getting down between the cutting and the soil and injuring the rootlets just starting out from the side of the cutting.

After currant cuttings are cut, which should be done when the leaves begin to fall, I place them in bundles of fifty to one hundred, depending on the size, with lower ends all one way. These I bury upside down, deeply enough below the surface to cause them to callus, until just before freezing-up time. Then set them out with the spade as in setting strawberries or along in a furrow turned by a small one-horse garden plow. When prepared as above the little roots will often stick so firmly to the bunch that they have to be torn apart, but before taking apart I gently loosen and shake up the bunch, which helps to get the roots out of a tangle.

Proper shoots to select for cuttings are good strong and plump shoots from good healthy parent plants.

Michigan.

CHARLES C. NASH
in American Gardening.





TIMELY TOPICS FOR THE AMATEUR—XIX.

THE conservatory and greenhouse should both be in readiness early in September to receive the tenderest varieties of plants that have been placed out of doors for the summer.

Close watch must be kept on the thermometer late in the evening, as the weather is uncertain after the first week in September, and probably earlier than this in the northern parts of the province.

Have material ready for the temporary protection of tender plants out of doors, as oftentimes one night's exposure will mar the beauty of plants that might perhaps lend their brightness to lawn and garden for several weeks if protected for a night or two from the first early frosts.

The selection of Holland and other winter and spring flowering bulbs, both for planting in the garden or for growing in the greenhouse or window, should now be under consideration. If left later than this, the selection and quality of the bulbs are not as good oftentimes as when the selection is made earlier.

The most profitable varieties for the inexperienced bulb grower, or for those who only require a limited supply of these useful

additions to the window or flower border, are Roman and Dutch hyacinths, some narcissus Von Sion, poeticus, ornata, and some tulips and crocus. All of these, except perhaps the Roman hyacinths, will give good results if planted in the flower beds or borders in October. The Roman and Dutch hyacinths and the two varieties of narcissus will also give good results either as window plants or in the greenhouse. Tulips and crocus are not as useful for indoor culture, and do not force as readily as the varieties of hyacinths and narcissus before mentioned. There are many other varieties of the narcissus besides those mentioned that are very pretty and succeed splendidly indoors in winter, amongst them being the different varieties of the Polyanthus narcissus. Most of the latter have very sweetly perfumed flowers, the Double Roman and the Grand Monarque being probably the best two varieties for indoor culture. The Paper White (Lotus alba), so much used for forcing by florists, is a good variety, but the perfume of its flowers is objectionable to many persons, and too powerful to make it acceptable as a window plant. The young beginner would do well to commence by growing the



FIG. 2149. NARCISSUS.

two varieties of hyacinths and narcissus that I have first mentioned, especially for pot culture.

Scilla siberica with its pretty bright blue flowers, that appear with the snow-drops very early in the spring, are very pretty little bulbs for the border. The *chionodoxas* and *sparaxis* are also very attractive in springtime in the border before the crocus and tulips are in their full beauty.

A few hints on the planting and potting of these bulbs for indoor flowering, as well as well as for early spring flowering in the flower bed or border, are given later on in this article.

THE GREENHOUSE.—Tender plants in pots or tubs will soon have to be brought into the conservatory or greenhouse or placed so that they can have temporary protection when early frosts threaten. If the plants are brought into the greenhouse, it may be advisable to shade them slightly for a week or so.

Toward the end of the month, or before sharp frost arrives, freesias in pots or boxes should be brought indoors and placed in a sunny position, until the flower stems begin to show, when they should be placed in a less sunny position to flower in.

Pelargoniums, cinerarias and herbaceous calceolarias are better kept out in a frame and covered with a sash when there is danger of frost. Cyclamen can also stay out in the frame until cold nights set in unless early flowers are wanted. Care must be taken to keep them safe from frost, more especially the pelargoniums and cinerarias, the foliage of the latter being very easily damaged, and although they grow and succeed best in a cool temperature of from 45° to 60°, much better than they do in a higher temperature, they will stand no frost.

Cuttings of all kinds of bedding plants required should be taken before frosts appear. Insert the cuttings in sand in pots or in boxes about two inches deep, or on the greenhouse bench if a large quantity is required.

The buds on chrysanthemums should be thinned, so as to leave only one or two terminal buds on each branch or stem. One or two good flowers on a stem is far better than a large bunch of inferior individual flowers.

Roman and Dutch hyacinths and all bulbs required for early flowering should be potted. Roman hyacinths and narcissus should be planted three or four bulbs in a four or five inch pot in fairly good soil. The tops of the bulbs should be just under the surface of the soil after the bulbs have been well watered. The Dutch hyacinths should be planted singly in a four or five inch pot. Place the pots in a cool, dark place after they have been well watered, and cover the pots with about an inch of light soil or coal ashes. The pots should not be taken into the house until the bulbs have become well rooted, which will usually be in four or five weeks,



FIG. 2150. HYACINTH.

when they can be taken in for successive flowering as required.

All watering should be done in the morning if possible.

Close the ventilators early in the day, especially if tender roses are growing either in pots or on the benches.

A little fire heat may be necessary toward the end of the month to prevent damping off.

THE WINDOW.—It will be necessary to have all tender plants ready for transferring to their winter quarters, unless a cold frame and sash are available for temporary use for the plants.

Many of the hardiest of the plants usually grown in windows such as geraniums, fuchsias, freesias, etc., will be better out in a frame or under temporary protection on cold nights, rather than being brought into the house too soon. By keeping them out

of doors as long as possible, they are far less liable to be injured by attacks of insects, such as green fly, red spider, etc. Care must be taken, however, not to risk them outside just one night too long.

Begonias, cactus, coleus, palms and ferns and similar tender plants will be better transferred to the window, if the weather is at all chilly and cold.

Verbenas, petunias, heliotropes, etc., out in the border, that were cut back as recommended in last month's journal, will be ready to pot up for the window. Water the soil well around the roots of these plants before taking them up, so as to ensure a good ball of earth being attached to the roots. Use a sharp, clean garden trowel for this purpose. A clean, bright trowel is of more necessity than is sometimes thought for removing plants from the border for potting up. Heliotrope is very easily touched by frost, petunias and verbenas are much hardier, and will not be injured very much by slight frosts, although a check from frost will induce and cause mildew on verbenas oftentimes.

Water all plants thoroughly once that are taken up from the border, and do not water them again until the top of the soil in the pot shows signs of being somewhat dry. Use about an inch of drainage at the bottom of all pots for growing plants in during winter, and use a little more sand in the soil than is used in spring or summer. Avoid using pots too large for the plant. Over-potting and over-watering are the cause of many failures with window plants, especially in winter. It is better to put the plants into pots that the roots of the plant will comfortably fill, than to pot into large pots with the idea that the more pot room, the more growth. This latter idea is a mistake, except in the case of a few strong growing, fast rooting plants such as stevias, eupatoriums, etc., as an excess of soil induces stagnation, and decay of the roots, especially



FIG. 2151. GERANIUM CUT BACK.

if the plants are given too much water. It is better to pot plants—especially those taken from the border—into small pots for a time first, and when established re-pot them into larger ones if required.

Cut back all geranium plants severely before taking them up from the border. (See Fig. 2151). Place the plants singly in small pots, or four or five in a six-inch pot, in soil composed of three parts sand to one part of loam. Or if a number of old plants are required put them in sand only, in a box about three inches deep and of the required size. No drainage is necessary, except some small holes in the bottom of the box. Keep the plants in the box until growth has well commenced when they can be potted up singly into 3 or 4 inch pots, in soil in which about a fourth part sand has been mixed. This plan is far preferable and gives better results than endeavoring to take the geraniums up from the bed and transfer them, foliage and flower complete, direct from the border into pots. The latter method is often fatal to the plant, or at best it results in producing before spring time some long lanky

plants with a foot or two of bare stems, tipped with a few sickly looking leaves, fit subjects only for the rubbish pile. If old geraniums are treated as first mentioned better plants can be obtained by spring than those grown from cuttings started early in the autumn.

Cuttings of bedding plants—or in fact of any plants required—should be taken before they are touched at all by frost. This is more particularly the case with cuttings of coleus, achyranthes and similar tender plants. Reluctance to despoil a plant by taking a few cuttings from it while it is still bright and beautiful in color and form, often results in the loss of some pet plant entirely. Some cuttings can generally be secured early from around the sides of the plants,



FIG. 2152. GERANIUM SLIP.

without marring their beauty sufficiently to be noticeable. Very few cuttings, especially those mentioned, will strike root and grow if touched with frost, or even if not taken before decay and decomposition of the foliage has set in, the latter condition often occurring when chilly wet weather prevails long before the first frosts of autumn have nipped the foliage. Cuttings of alternantheras, ageratum, double alyssum, and geraniums are hardier, but it is best to be early enough in securing a stock even of these, in good time.

It is a good plan as well to take up a few old plants of the varieties mentioned. All of these (except the geraniums) should be taken up without being cut back, except perhaps to take off a few loose side shoots, or any decayed flowers or foliage. These plants may be placed in pots or boxes in rather sandy soil and taken into the greenhouse, or placed in a frame and shaded for a few days. Keep them here until there is danger from frost and give them sufficient water to prevent their wilting, and plenty of air on fine days, when the plants are established.

FLOWER GARDEN.—Petunias, asters, cosmos, zinnias, nasturtiums, antirrhinums, etc., will still keep the garden gay and bright. No flower garden should be without petunias and antirrhinums. The last named is especially useful as a cut flower, its spikes of peculiar shaped flowers that can be had in such a variety of colors, and its profuse flowering habit in spite of repeated cutting, as well as its easy culture make the antirrhinum one of our most valuable drought and sun resisting flowers. I planted a row of about thirty plants most of which were self sown plants dug up in the border in May, and which have yielded an abundance of bloom since early in July and will continue to do so until severe frost sets in. Objection is sometimes taken to the undeveloped buds at the top of the spikes, but when the latter are used as points for relieving the flat surface that many summer flowers present when arranged in bouquets or vases. they are invaluable. A vase or bouquet of trusses of bloom of phlox paniculata or even of asters, is much improved by the addition of a few spikes of the old fashioned snap-dragon, or antirrhinum.

Many of the new Californian petunias are very beautiful. Their large, showy and gorgeously marked flowers make them a decided acquisition. They have not proved,

however in many cases, as robust in habit as the older varieties, and are not quite as enduring in character, requiring liberal treatment to have the best success possible with them.

Dahlias must continue to have plenty of water and a little liquid manure occasionally, if well developed, perfect blooms are looked for.

Spring flowering bulbs should be planted in October. The smaller varieties such as snowdrops, scilla siberica, chionodoxa and crocus require to be planted nearly an inch below the surface, whilst tulips, hyacinths and narcissus can be covered with about two inches of soil.

German iris, herbaceous paeonies and dielytras may be divided and transplanted in October if required. These and most all early flowering perennials having thick fleshy roots are best planted in the fall, as oftentimes these plants are in flower almost before they can be attended to in spring.

Later flowering, fibrous rooted perennials, such as phlox paniculata, delphiniums, aquilegias, gaillardias, heliopsis, etc., are best left until spring before transplanting. Seedling plants of the latter however, are best planted in a cold frame and protected with a few leaves thrown on them in severe weather. A sash placed over them in very severe weather is also advisable.

A good mulching of long strawy manure or some similar material should be given perennials transplanted in the border in autumn. This mulch should not be applied until early in December, or when severe frosts set in.

VEGETABLE GARDEN.—Late planted celery should have a little earth drawn up around the roots, sufficient only to keep the stems compact and upright. Late celery requires very little earthing up whilst growing, as it can be blanched in the cellar or pits later on. It may be necessary to mould it up to protect

it from severe frost later on, before it is taken in for the winter, but it is not otherwise really necessary or beneficial.

If you have a small frame and sash lying idle, it can be utilised for sowing a packet of early cabbage and cauliflower seed in. A packet of some early variety of lettuce sown in a part of the frame will also give a few early lettuce plants in spring. Put the sash on in very severe weather. A covering of leaves or straw may be necessary in extra severe weather, but only for a few days at a time. If taken a little care of during the winter, you will have a nice lot of sturdy, hardy plants to put out in the garden that will give returns much earlier than spring sown seed.

Onions should be stored in a dry, cool shed and not left out on the ground too long.

The seed from top onions should be gathered and dried when ready.

Spinach for use in early spring should be sown early in September, in drills about

twelve inches apart and about an inch deep. Sow the seed rather thickly to allow for some plants being winter killed.

The strawberry bed should be cleaned entirely of weeds. Mulch the plants with long strawy manure or some similar material early in December.

Manure and fork up all vacant plots of ground ready for an early start in the spring. If the ground is stiff and clayey, throw it into good sized ridges after manuring it. This ridging exposes the soil to frosts that pulverize the soil, and leaves it ready for sowing or planting much earlier than it otherwise would be, as only a forking down of the ridges is necessary, before planting or seeding commences. Ground thrown into ridges can often be worked fully a week earlier than if it is dug and left flat and level. Ridging light sandy soils is not necessary or as productive of good as it is on stiff heavy land.

Hamilton.

W. HUNT.

ARTISTIC ARRANGEMENT OF FLOWERS.

THE use of several kinds of flowers in one arrangement is often as disappointing as the use of too many. There may be harmony of color, but not of habit. A pink rose, a white dahlia are harmonious, so far as color goes, but such a combination is not pleasing because there is a lack of harmony in the habit of the two flowers. As a general thing, it is advisable to use each kind of flower by itself. If two are used, one of them must be content to play a subordinate part. It must serve as a foil to the other, heightening and emphasizing its beauty by the contrast with itself. If a spray of wild clematis is used with roses, the effect is very pleasing, because the white of the clematis brings out the color of the rose vividly, but it, in itself, is unobtrusive. It is a back-ground

accessory in the composition of the picture. But if you were to substitute a lily for the clematis, you would find the effect much less pleasing, because there would be a rivalry for supremacy between it and the rose. Neither would consent to occupy a subordinate position. Therefore do not combine flowers of equal importance and expect them to afford as much pleasure as if used separately. Sweet Peas are delightful for bouquets—by themselves. But I know of no flower that can be arranged with them without seriously detracting from their beauty. It is the same with nasturtiums and pansies.

If I were going to arrange a vase of sweet peas for table, or parlor, I would go into the garden and cut my flowers with the longest possible stems, bunching them lightly in my hand as I cut them, but without

trying to arrange them. I would not cut more than a dozen or fifteen stems unless the vase in which they were to be put was a large one. I would drop them into it, give a little shake and lo! the blossoms have arranged themselves far more satisfactorily than I could have done it by putting them deliberately together, because they would have disposed themselves simply and naturally.

Formality and artificiality are fatal to artistic work in bouquet-making, because they are the opposites of simplicity and naturalness. Prove the truth of this by experimenting.

The vessels in which you put your flowers have much to do with the effect. Long-stemmed flowers like the lily, upright and stately in habit, will be spoiled if used in low vases. Flowers with short stems are always unsatisfactory in anything but low bowls or other shallow vessels. Color must be also

taken into consideration. A blue china bowl may be pleasing when filled with yellow roses, but put pink ones into it and you get a discord. As a general thing, a crystal vase, or a cut-glass bowl or tray, will be found more satisfactory than any colored vessel, because, when these are used, there can be no clash of color—no striving for predominance in hue or tone between the flowers and their receptacle. When colored are used, great care must be taken to secure proper contrast and entire harmony, otherwise the general effect will be disastrous. In using decorated bowls or vases you run the risk of introducing a rivalry between them and the flowers they contain. This should always be avoided, because the flowers are the important feature, and nothing should be used with them which has a tendency to divide the attention of which they should have the monopoly.

E. B. REXFORD in the *Brown Book*.

DEUTZIA, "PRIDE OF ROCHESTER."



FIG. 2153. DEUTZIA, PRIDE OF ROCHESTER.

This variety of the deutzia is undoubtedly one of the prettiest of this attractive class of flowering shrubs. Unfortunately it is not as hardy as some of the older varieties that have been introduced.

The specimen as shown in the photograph has been partially killed back several times during very severe winters, being rather less hardy than a *Forsythia fortunei* and *Halesia teraptera* planted one on either side of it. In spite of the check it has received on several occasions by being winter killed, it invariably makes sufficient new growth to produce a profuse supply of its pretty pink and white blossoms the following season. In favorable situations in Southern Ontario this shrub succeeds very well, and makes a pretty and conspicuous object on a lawn when laden with flowers early in July. It grows to a height of four or five feet but can be easily kept in a more dwarf compact form by a little judicious pruning during the fall or early winter.

Hamilton.

W. HUNT.

HARDY PERENNIAL PLANTS OF THE BEST AND MOST USEFUL VARIETIES FOR ALL PURPOSES.

MY intention for making up this list is that any person may choose varieties suitable in height, color of bloom, etc., to suit any situation, large or small. All of the journals and catalogues of perennials are very confusing to the inexperienced lovers of these beautiful flowers. It has been well said that the earth wears a crown of floral beauty, and among the brightest, richest, and sweetest are the hardy perennials; they fill a place in our gardens and in our hearts, which nothing else can supply; like flowering shrubs when once planted they are a thing of beauty for a life time. What is more cheerful or more beautiful than the clumps of Phlox, Lilies, Iris or Pæonies that our fathers, mothers or perhaps our grandmothers planted. If people owning their own homes would only buy of the following assorted varieties of perennials, in place of wasting their money year after year in annuals, the same money that is spent in these flowers that only last a season and are gone, would, if put to the buying of the following perennials, secure this full collection in a few years, and, if properly planted, would be an everlasting beauty to any home and the community in which they were planted. A list of this sort by some person familiar with the best of our hardy perennials, hardiest and best shrubs, and most decorative trees, and I may add our fruiting trees, has been a long felt want. What do we find? In all our journals there are hundreds of varieties of perennials, shrubs and fruiting trees that are of no value, some have never been of any value. Our fruit catalogues seem to be vying with each other as to which can supply the greatest number of names, such lists particularly in fruits has been to a great extent very detrimental to

the well being of the most of our orchardists, and we can see the bad effects of these lists in our orchards all over the Province. The beauty of a good collection of perennials is unexcelled by any other flowers; they have cheered many persons through dark hours of life; they were loved and planted by dear ones whose voices and presence are no more; their blooming calls to our minds happy days and faces that are gone not to return. There are many cheerless looking homes in our rural districts, that could be made ideal abodes, with very little money, by judicious planting of the commonest of herbaceous plants and shrubs from the woods, if the few dollars could not be spared to buy of the list named below. Let us plant of these old friends of our forefathers, that I am glad to say are fast becoming great favorites with the flower loving people of the world. There cannot be mistakes made in selecting from the following list, as every one of those mentioned is first class, chosen from among hundreds of varieties.

Achillea ptarmica flore plena—Double sneezewort (northern hemisphere), height, one foot; in bloom all summer; flowers small, white and double.

Anthemis tinctoria—Kelway's hardy golden Marguerite (Europe), height, eighteen inches; blooms in end of June; flowers large yellow.

Aquilegia or Columbines—There are many of these in cultivation in every shade of color, and in doubles and singles, short and long spurred; there is also the well known native variety *Canadensis*. They range from eighteen inches to three feet in height, and are indispensable for the hardy border, ranging in bloom from June to September.

Aster amellus—From (Russia,) height, eighteen inches; blooms from July to fall;

flowers large and purple ; very good for cut flowers.

Chrysanthemum uliginosum (Pyrethrum)—Showy white flowers two inches across four feet high, in bloom August to September, fine to cut.

Coreopsis lanceolata and *Grandiflora*—Leaved tick seed (United States), height, two feet, flowers large yellow ; in bloom all summer if the seed pods are kept off.

Delphiniums or Larkspurs—There are many shades of color and varieties of this most beautiful and useful plant. No garden should be without some of them, they vary in height from two feet to six feet.

Doronicum Caucasicum—Caucasian Leopard's bane (Europe), height, one foot ; in bloom in May and June ; a grand early perennial ; flowers large yellow.

Gaillardia grandiflora, or Blanket Flower—(North America), height, eighteen inches ; flowers large violet blue and yellow, they can be had in several varieties, flowers good to cut ; very desirable plants.

Gypsophilea paniculata—Infants Breath, (Europe), height, eighteen inches ; in bloom July and August ; it bears myriads of small white single flowers, if cut and dried will last for a long time, good for bouquets.

Helenium grandicephalum striatum—Flowers striped, yellow and white variety. *Autumnalis* is a native of Canada, the same height as above variety, two feet. Variety *grandiflora* grows to the height of six feet ; the last two named varieties have yellow single flowers in the greatest abundance ; the three are good border plants and good to cut for large bouquets.

Helianthus multiflorus flore plena—(Dahlia Sunflower), native of United States, height, four feet ; blooms in August ; flowers large yellow and double, a very useful perennial.

Heuchera sanguinea—Alum root (native of Mexico), height, eighteen inches ; blooms in June ; flowers scarlet, very showy and use-

ful to cut. This is one of the brightest perennials in cultivation. There is also a white variety.

Hemerocallis Dumortieri—Japan day lily, height, two feet ; a gem for the border or for cutting ; soft rich yellow, exterior bronzy yellow or orange.

Hemerocalis flava—Golden yellow, fragrant day lily, (Europe), good for cutting, about three feet high, one of the best.

Hemerocalis Thunbergii—Bright yellow, three feet high ; very fragrant ; as this one blooms long after all the other day lilies have finished, it adds much to its value as a cut flower. There are two double varieties, and one variegated foliage ; all are worthy of trial in the herbaceous border, (Europe).

Hibiscus Moscheutos—(Ontario Rose Mal-low) height, three feet ; blooms in August. The hybrids called Crimson-eye are magnificent plants ; flowers 9 inches in diameter, white with crimson large eye, and all pink in others ; from two to five feet high ; August and September, very fine.

Iberis sempervirens—Evergreen candytuft, (Candia), height, one foot ; in bloom in June, white, a little fragrant in large clusters and flat, good to cut.

Iris germanica—German Iris, (Europe), height, two to three feet ; there are many shades of color in the Iris, they are large, showy, very desirable plants.

Iris Kaempferi—Japanese iris (Japan) height, two to three feet ; the flowers of this iris are equal to the most beautiful orchids in many colors and varieties.

Lilium auratum—(Japan), height, four feet ; blooms in July, is better of some protection in the winter, this is a very large and the most beautiful of all the colored lilies.

Lilium speciosum—Var *rubrum* and var *album*, are hardier than the above and are very fine lilies, bloom in August. (Japan).

Lilium longiflorum—A grand long white bell flowered lily, increases fast, one of the best ; height two feet.

Lilium candidum—(Japan), pure white ; height three feet ; very hardy and free blooming variety, grand to cut, all perfumed.

Lychnis splendens—Double red, London pride, (Europe).

Lychnis semperflora—Pink, small flowers in abundance.

Lychnis vespertina—Double white : about two feet high ; the above three varieties are the pink of perfection of what a perennial should be, grand to cut.

Paeonia officinalis—(Europe), height, three feet ; I have about sixty varieties of the paeonia growing in all shades of color, in bloom June and July ; one of the best border plants, grand to cut, very showy, requires deep rich loam soil.

Papaver nudicaule—Iceland poppy, (northern hemisphere), eighteen inches ; color orange yellow and white ; double and single, bloom in June. The Oriental variety is very beautiful, nine inches in diameter, scarlet with black eye, grand if planted in deep rich damp soil (Asia), three feet high.

Phlox decussata—Hybrid perpetual phlox (United States), height, three to four feet ; in many colors, grand perennials, in bloom July and August.

Platycodon grandiflorum—(Chinese Campanula), China and Japan, height, two feet ; in bloom July and August ; there is a white variety, alba, also double ; both are first class perennials.

Pyrethrum uliginosum—Sometimes called chrysanthemum uliginosum. Great ox eye, (Russia), height, four feet ; in bloom August and September, makes a grand display, white.

Rudbeckia laciniata—Golden Glow, (United States), height, six to eight feet ; blooms in August and September ; flowers yellow, double and in great abundance, a

grand plant for the back of the border and for cutting.

Spiraea—There is a number of varieties of the herbaceous spiraeas, and there is no plants more beautiful when in bloom, grand to cut for any purpose ; there should be more of these plants used when they become better known ; the following are probably the best :

Spiraea aruncus—Three to four feet long, feathery panicles of white flowers, a grand variety.

Spiraea astilboides—This one is also a grand perennial, a good bloomer ; height, three feet ; feathery white flowers, useful for forcing.

Spiraea astilboides floribunda—A superb variety, dwarfer and blooms white.

Spiraea chinensis—"Astilbe" (China) a grand acquisition for the border, a robust grower ; three feet high ; white triangular plumes, tinted with pink, excellent.

Spiraea Japonica—Good for the border or for pots to force ; two feet ; white.

Spiraea Japonica aurea reticulata—A variegated form of the ordinary variety, green leaved, veined with yellow, very pretty ; two feet ; white flowers.

Spiraea compacta multiflora—A splendid variety for pots and the border ; immense white plumes, robust grower ; three feet.

Spiraea filipendula plena—A beautiful double flowering variety, very neat fern like foliage, one of the best and neatest of this class ;

eighteen inches. There is also a single flowering variety of the last.

Spiraea palmata—(The Crimson Meadow Sweet) Flowers crimson, very showy large panicles ; three to four feet ; one of the best.

Spiraea palmata alba—A snow white variety, very fine ; three feet.

Spiraea palmata elegans—This variety has pale rose colored flowers, very fine ; three to four feet ; one of the best.

NOTE.—All the above are deserving of cultivation ; they are very easy grown and grand to cut for bouquets ; most of them were raised in Europe.

Statice latifolia—Sea lavender, (Bulgaria) fifteen inches ; good to cut, will last a long

time if dried ; blue ; very fine herbaceous plant.

Yucca filamentosa—Adams Needle, this variety is hardy, and flowers beautifully in the counties of Welland and Lincoln. They are imposing objects, they grow from six to seven feet high when in bloom ; flowers white lily like.

Lythrum Salicaria—(Spiked Loosestrife), Niagara Falls native plant, very good perennial ; three feet high ; blooms all summer, flowers reddish purple.

Anemone Japonica—or wind flower, height three feet, (Japan). There is a number of varieties of this beautiful late flowering plant, but this one which is white and its sister variety *rubra*, red, is the best for common cultivation ; flowers in September and until cut down by frost : the red one is only two feet high.

Chelone coccinea—is a charming plant ; two feet ; red flower ; very showy good to cut. Roderick Cameron.

Before Niagara Falls Horticultural Society.

PREPARATION FOR PLANTING FALL BULBS.

WHAT more desirable ornament can be suggested for the border of a well-dressed lawn, than a few beds of spring flowering bulbs? They are so delightful to the eye in early spring, after gazing so long at the monotonous white snow and defoliated trees. The month of October is the time for planting hardy bulbs, and, if they have not been already ordered, no time should be lost in securing them.

different varieties of the same kind. The following cut, which has already appeared in this journal, well shows the proper depth for planting the various bulbs. Crocuses and snowdrops should be planted two or three inches apart, tulips five inches, and hyacinths seven.

Mr. E. E. Rexford, a well-known American florist, writing about tulips in the *American Agriculturist*, says : " Among the tulips

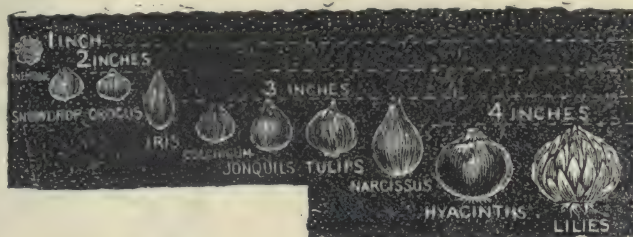


FIG. 2154.—SCALE OF DEPTH FOR BULB PLANTING.

The mere mention of tulips, hyacinths, crocuses, narcissi and snowdrops is surely enough to enthuse the flower lover with ardor in the preparation of the ground and the selection of varieties for planting.

The soil should be well drained, and before planting, spaded deeply and well enriched with old cow manure. Then plant each kind of bulb by itself, and, if contrast of color is needed, it can be secured by using

can be had scarlets and yellows, and other light colors in sufficient variety to afford charming and strong contrast. In the hyacinths ; reds, whites and blues afford ample chance for contrast. But do not plant double and single varieties promiscuously, because they happen to be of the color desired. Better keep each kind by itself. The same will apply to tulips, which show better in masses."

HOW TO GROW THE TUBEROUS BEGONIA.

A PAPER READ BEFORE THE LINDSAY HORTICULTURAL SOCIETY

By W. H. STEVENS, B. A.

IT may be of interest to know that the whole order of plants called Begonia was named after a French botanist Begon, and their introduction to European floriculture took place about a century ago, there being at that time only a few discovered.

The tuberous begonia was introduced into England early in the present century (1810) from South America. Peru, Brazil and Mexico are the native places of the plant. A few originated in Africa, the West Indies, and other warm countries.

The plant may be secured from most Canadian and American florists and seedsmen. The special features that recommend them are the foliage and the various colors of the flowers, shading from pure white to pink and deep crimson; from pale yellow to orange, and from almost brown to bronze.

There are two varieties of tuberous begonias, the erect and the drooping. The latter are especially adapted for window boxes and hanging baskets placed in partially-shaded places, protected from strong winds.

The easiest way to secure a plant is by join-

ing the Lindsay Horticultural society, the next easiest way is to buy the tubers from some reliable florist.

The plants should be secured early in March, and if you can command a temperature from 60 to 70 degrees, start the growth at once. Secure a flat box, say 2½ to 3 inches in depth, with holes bored in the bottom for drainage. Put about half an inch of sand in the box first, so as to cover the bottom evenly. Then place in the bulbs, and sift in dry sand to almost cover the bulbs, water well, and even up any holes

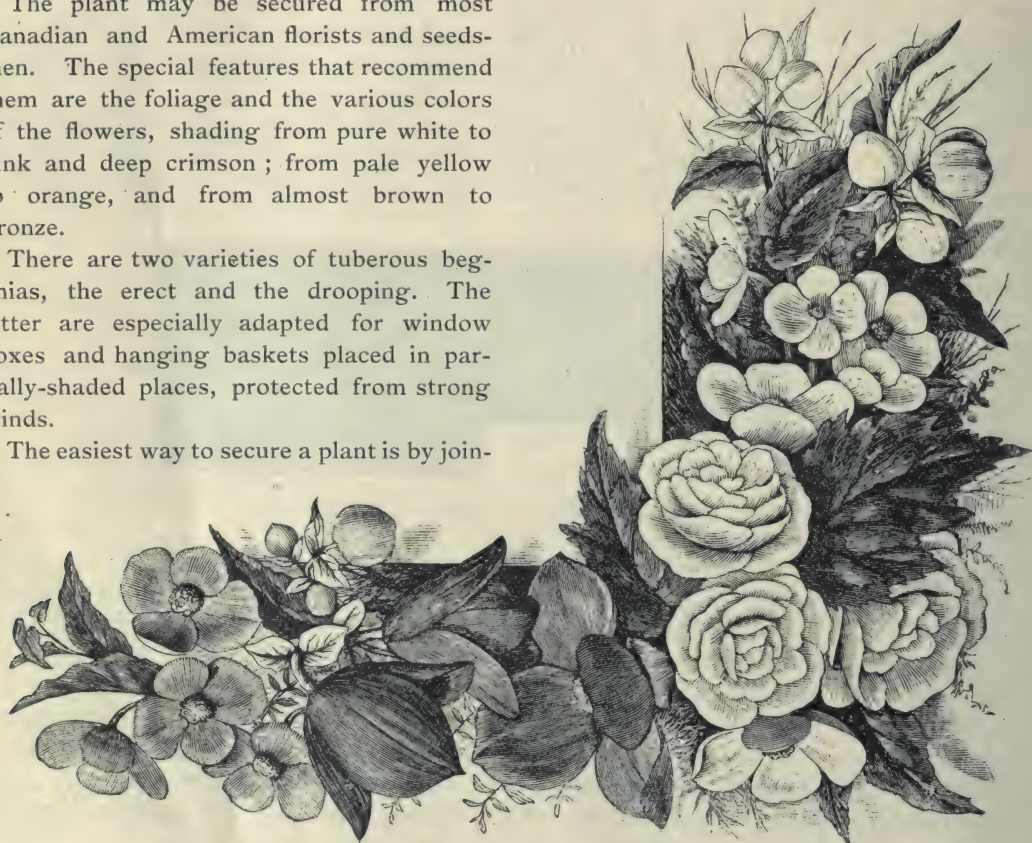


FIG. 2155.

with dry sand, and water again. The bulbs should be barely showing through the sand. Place the box in a warm position near the glass where the sun at midday does not strike directly on it, and in about ten days, a tuber or two may be carefully raised from the sand: if small fibrous roots about an inch long are showing, the tuber is ready for potting. In potting use well-drained pots not too small. A tuber one inch in diameter requires a six inch pot. Very large tubers may require a nine or ten-inch pot, as it is best to have the pot large enough so that transplanting may not be necessary. Repotting is a dangerous process on account of the great number of fibrous roots formed. Care must be taken in potting the tubers, not to injure the young fibrous roots, by pressing the soil too closely around them.

In growing, the plants do not require a high temperature, not more than 50 or 60 degrees, to produce stocky plants with good foliage.

Give the plants plenty of fresh air, and do not water the leaves, as the rough spiny surface retains the water and may spot or even rot the leaves.

The tuberous begonias may be propagated from cuttings with fairly good success, in pots or in pans well drained and about half

filled with loamy potting soil, mixed with a small proportion of sand. Then fill the pot up with nearly level with sand. The surplus growth of a large tuber may be utilized for cuttings.

The plan of getting the cutting, is to pull or break the growth away from the tuber, for the base of the branch near it takes root more easily as it is always partly callosed when taken off.

If there are any flower buds on the cutting, pinch them off, and be careful not to bruise the cutting in putting it into the soil. The cuttings when first started require a warm situation not fully exposed to the sun.

The begonia may also be propagated from the seed. The seed is small and requires some care in planting. Like other small seeds they must not be planted deep in the soil.

In the fall, about October, after tops have been slightly touched by the frost, but before the tubers are touched, take the plants up foliage and all, place them in boxes so deep that the tubers can be covered an inch deep with moist sand. Put the boxes in a dry cool place, 40 or 50 degrees, and withhold water gradually until the foliage drops away of itself from the tubers, then stop watering till the next spring.





The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

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ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

ANNUAL MEETING.—It is proposed to hold our Annual Meeting at Cobourg, the 18th, 19th and 20th of December.

A FINE STRAWBERRY YIELD.—Mr. Sollitt, of Orillia, picked three thousand six hundred and fifty boxes of strawberries off an acre of land, and netted \$200 for them.

GRAPES AT LISTOWEL are better than represented in our report of Perth County. Mr. A. J. Collins says: "The grape crop there is unusually good in this section. I expect to have grapes to sell besides supplying myself and making wine. I am very doubtful if the crop of plums will reach expectations as although the prospect was good a short time ago they are dropping fast now and rotting. The Green Mountain grape sent out by the society some years ago is fruiting with me this year for the first time and

shows some very nice bunches; the fruit is already showing signs of early ripening being quite soft to the touch."

NEW FRUITS.—We have just received (August 13th) from Wm. Fleming, Owen Sound, a package of fruit with the following note:

SIR,—I send you first a box of STRAWBERRY RASPBERRY. This fruit sells readily here to the trade at 10 cents a box. The Seldon House, Owen Sound, order ten boxes at that price for use to-day. I cannot supply the demand for them. Second, I send you some branches of JOCELYN GOOSEBERRY. I sold forty baskets of these to the trade this season at 75 cents each. I have had them five years, and they are free of mildew, and the plant is very productive.

The strawberry raspberry is a large, fine attractive berry. We have grown it two or three years at Maplehurst, but we do not think it would prove of great commercial value, because the quality is inferior.

The samples of Jocelyn gooseberry are

very fine, and the branches are laden with the fruit. They are red like Industry, about the same size, but apparently more free from mildew and much more productive.

Possibly this would be worthy of general distribution by our Association.

MISS ORMEROD.—With great regret we chronicle the passing away of one of the most prominent women scientists of the age, Miss Eleanor Ormerod, who died at St. Albans, England, on the 19th July. The Gardener's Chronicle says: "Her death removes from among us one who rendered great service by making the knowledge of the men of science available for practical purposes. Indeed, her life was for many years devoted to the interests of agriculturists. She was the youngest daughter of George Ormerod, D. C. L., F. R. S., of Sedbury, Gloucestershire, the well-known author of the *History of Cheshire*. Three and thirty years ago she gained the Silver Flora Medal of the Royal Horticultural Society for specimens, drawings and models, illustrative of insect depredations. In conjunction with the late Andrew Murray, she formed the collections of economic entomology now in the Bethnal Green Museum. She was the first lady Fellow of the Meteorological Society and edited a mass of important documents relating to weather and plants. Her *Manual of Injurious Insects and Methods of Prevention and Remedy for their Attack on Food Crops* enhanced her reputation; but she will be, perhaps, best known by her *Annual Reports and Observations on Injurious Farm Insects*, which she first began to issue a quarter of a century ago. She acted for many years as Consulting Entomologist to the Royal Agricultural Society, and was lately Additional Examiner in Agricultural Entomology at Edinburgh University; and rather more than two years ago the Société Nationale d'Acclimation de France awarded her the large silver medal

bearing the portrait of Geoffrey Saint Hilaire. The University of Edinburgh conferred on her the degree of L. L. D.; and the Royal Horticultural Society comparatively recently awarded her a Victoria Medal of Honour. For some years past Miss Ormerod had been an invalid, and for upwards of a month had been seriously ill."

THE WORLD'S FAIR AT ST. LOUIS IN 1903.—One would think that these immense expositions would weary their patrons, and that promoters would shrink from such deep undertakings, but instead we find World's Fairs are becoming more popular. An organization has already been completed, and a Committee on Agriculture has been appointed, consisting of seven members, who have the immediate supervision of all matters pertaining to agriculture, in connection with the Exposition. This committee has issued the following plan for this grand exposition:

The foundation plan of St. Louis World's Fair will be that of an exposition both national and international in its character, so that not only the people of the Louisiana Purchase Territory, but of our Union, and all the nations as well, can participate. It will be so projected and developed as to ensure the active interest of all the peoples of the world and induce their participation upon a scale without parallel in any previous exposition.

It will present in a special degree, and in the most comprehensive manner, the history, the resources, and the development of the States and Territories lying within the boundaries of the Louisiana purchase, showing what it was and what it is; what it contained and produced in 1803; what it contains and produces in 1903.

It will make it plain that the prophecy of 1803 has been more than fulfilled, and show that a veritable empire now lies between the Gulf of Mexico and Puget Sound, within the limits of the territory, Jefferson obtained by the Louisiana Purchase.

It will show the history, resources and development of the colonies and possessions of the United States, including Porto Rico, Alaska, Hawaii, Samoa, Guam and the Philippines. It will embrace in a similar portrayal Cuba and any other country which may enjoy the special and exceptional protection and guardianship of the United States.

It will depart from the plan of all past expositions and make life and movement its distinguishing and marked characteristics. To this end it will aim definitely at an exhibition of man as well as the works of man; at the presentation of manufacturing industries in actual conduct as well as

the machines out of action; at the exhibition of processes as well as of completed products.

It will carefully plan in the location, the construction and arrangement of all buildings and works so as to assure the highest degree of convenience, ease and comfort for visitors who come to inspect the wonders contained within its enclosure. It will make it both easy and comfortable to get to the Exposition Grounds from every quarter of the city and from every railway terminating in St. Louis. It will in like manner make it easy and comfortable to move about the Exposition Grounds, and to pass from building to building and from point to point within every building of large area. In short it will make the transportation of visitors the subject of special study and spare no expense in the solving of this vital problem, so that the St. Louis World's Fair may go down in history as the first great international exhibition which a visitor could inspect without enduring fatigue and hardship.

Finally, it will embody and illustrate the latest and most advanced progress in the employment of the energies of nature. It will be up-to-date in the use of all new motive forces, and be fully abreast with science in the utilization of every novel invention or discovery that has practical value.

GOOD STRAWBERRIES.—Mr. S. F. Powell, of Briar Cliff, N. Y., addressed the New York Horticultural Society at its last meeting on this subject, and among some of the important factors in strawberry growing he gave the following factors in strawberry culture:

First, deep rich soil; second, clean culture; third, selection of suitable varieties; fourth, frequent renewing of the plants.

After touching on the preparation of the soil, the necessity for securing fertilization of the pistillate sorts and a general description of hills versus matted rows, the lecturer proceeded to enumerate varieties.

For early he recommended Johnson's Early, Excelsior, Crescent and Carrie; for mid-season, William Belt, Gibson, Cumberland, Marshall and Brandywine; for late, Parker Earle and Parker Earle Improved, Gandy and Kentucky Seedling.

Johnson's Early was very highly spoken of, and a favorable future predicted. For those who liked an acid flavor, Crescent was certain to be remembered. Marshall was a profitable berry for home use. It was profitable only under a very high culture and would not give anything like adequate return if suffering from the slightest neglect; it preferred a heavy soil. Brandywine was commended for its fine flavor. Parker Earle Improved must be grown in hills; it was such a prolific bearer that it was utterly unsuited for a matted row or half-matted row culture.

But although giving the foregoing list of varieties, it was insisted that no grower could determine what was best suited to his own conditions without trial. Therefore, the strawberry raiser must test varieties until he found what answers his requirements; and it was the opinion of the speaker

that in the future quality would count more and more. Bubach to-day, the most largely grown of all varieties, he placed at the very bottom of the list in point of merit.

For fertilizer—and the strawberry requires an abundance of food—use a mixture comprising 10 per cent. potash, 8 per cent. phosphoric acid and 3 to 5 per cent. ammonia.

The best possible preparation that can be made is that of clover culture. First secure a growth of red clover. The second year cut the first growth, and about August 1 plow the second in. After very thorough tillage, sow twelve pounds of crimson clover seed per acre, which will add another great mass of roots to the soil, the decomposition of which enables it to hold a much greater amount of water.

To obtain the finest berries, the soil must be fully supplied with vegetable matter, and clover not only supplies this, but furnishes the necessary nitrogen at the smallest possible cost.

Samples of medium red and crimson clover were shown and upon their roots the sacs or modules producing nitrogen were pointed out, and the manner in which the soil was improved by them.

The control of the energies of the plant is of vital importance. If allowed to form large quantities of new plants, the yield of fruit will be greatly reduced; hence runners must be frequently cut.



FIG. 2156. PITCHER PLANT.

PITCHER PLANTS.—The above photo is a group of trumpets or pitcher plants and fly traps growing by Mr. Walter T. Ross, Secretary of the Picton Horticultural Society. The Venus' Fly Traps are decidedly carnivorous plants, it is very interesting to see them catch flies, and the traps open again in a couple of days ready to catch more. They

are difficult to grow, and are said to be found only in one place in the world."

POINTS IN PEACH CULTURE.—Mr. J. H. Hale in Rural New Yorker, gives points for the soil and tree in peach culture. He advises thirteen feet apart as the distance with which he has had the best results, when attended with close pruning; but for general planting and ordinary pruning from 18 to 22 feet is the best distance. Catch crops should not be planted in the young orchard, but instead 12 to 15 good cultivations given.

During the first 2 years, after a month or 6 weeks of thorough cultivation, cowpeas may be seeded over two-thirds the space between the rows, leaving space each side of the trees for single-horse cultivation for 2 months more. The pea vines should be left in the ground over winter as a mulch. After the first 2 years, the whole space between the rows should be cultivated up to the last of July or first of August, and then seeded completely with 15 or 20 lbs. of

clover for winter protection of the peach roots. The clover should be plowed under in the early spring before much growth takes place.

In pruning a light open head is desired. The first season's growth should not be shortened too much, but the second season all the strongest branches may be literally shortened, leaving the side branches to spread so as to make a broad low head. In case it seems best not to cut a leader entirely away, never cut back to a dormant bud, but always to some side branches; these will slowly take on growth and fruiting strength and check the upward tendency of growth that is sure to follow the cutting back of a strong peach limb to a dormant bud. Not much attention need be paid the side branches; they will never make leaders, and in the author's opinion it is a mistake to do so. A tree pruned as here suggested should give three-fourths of its fruit near enough to the ground so that it can be gathered without a ladder.

QUESTION DRAWER.

Blackberries.

1237 SIR,—How and when should blackberries be pruned for best results, and when should the old wood be taken out?

Nicolston.

W. V. MILLER.

We usually pinch the terminal shoots towards the end of August to check the growth and cause the canes to more fully ripen than if allowed to grow undisturbed. Another object is to encourage the growth of laterals. Four or five feet is high enough for the canes to be allowed to grow, and for the laterals one foot is long enough. Thus pruned, the canes will stand up without support, and allow of horse and man to pass through between the rows in cultivation.

The old wood may be taken out as soon

as fruiting season is over or about the same time the young shoots are headed back, or the work may be done at any time most convenient in the winter or early spring.

Shot Hole Fungus.

1238. SIR:—Please find enclosed sample leaves off my plum orchard. I sprayed three times with Bordeaux mixture this year. The leaves nearly all fell off last fall before the fruit was ripe and I am afraid they will do the same this fall. What could I do to keep them healthy—trees are six years old and bearing nicely.

Kingscourt.

O. F. BIRCHARD.

The leaves enclosed by our correspondent are riddled with small, round holes, as if made with small shot, for which reason this disease has been called the shot hole fungus.

It is known to scientists as *Septoria Cerasina*. It attacks the foliage of both the plum and the cherry, and, though not usually so serious as in the case before us, inflicts considerable injury by interfering with the proper function of the leaves, or by causing them to drop prematurely. The leaves attacked first show dark purple spots, visible on both sides, from one twenty-fourth to one-eighth of an inch in diameter. The tissue covering these spots soon become dead brown in color and finally drops off from the leaf entirely, leaving numerous clear-cut, round holes, such as are well shown in Fig. 2157.

Under the microscope we may detect, upon the under surface, very minute black spots. These spots are the fruit of the fungus-like capsules in which the spores of

be a preventive one; for which we would advise thorough spraying with Bordeaux mixture several times; the early part of the season, beginning about the time the leaf buds begin to open.

New Strawberries.

1239. SIR.—Of strawberries I have Williams, Wilson, Marshall, and a few Clyde. This spring I set $1\frac{1}{2}$ acre of strawberries. I want a good berry, an out and out red. Those pinkish ones I do not fancy. Please name the best early prolific variety that is a good shipper. If I had early strawberries I could get good prices, as it was I was first on the list, and got 10 to 12 cents for the first couple of pickings; but that finished the good prices and then I got 7 to 8 cents. Last year I had over 6000 baskets, which ran from 7 to 9 cents a basket. What is the Bubach like, and where can plants be got.

Nicolston.

D. V. MILLER.

The past season has brought before the public several new and very promising varieties of strawberries, the progressive



FIG. 2157. SHOT HOLE FUNGUS.

the fungus are produced in great abundance. These very slender, many times longer than broad, and quite transparent. Each spore is divided by cross walls into two or more cells, each of which is capable of producing a new parasite. The spores live through the winter on the old leaves, and thus serve to propagate the fungus in early spring.

In Vol. XIII, p. 316, may be seen an illustration of a highly magnified section through the leaf, including one of the spore capsules above described, and at *a* above are shown some spores still more highly magnified.

Nothing can be done at this season beyond destroying in some way, if possible, the old leaves. The best treatment, however, will

grower is always on the look out for something better than he has.

One of the best new ones is August Luther, judging from one years fruiting. It was claimed for it that it was earlier than Michels Early; I planted it side by side with the same number of Michels, gave it the same care and attention on the same soil, and this Spring when blossom time came, the Michels was in bloom three days before the August Luther; I then thought that the claim made for it was not going to be carried out, at least not with me and my soil, but when fruiting time came I find by my notes, that the first ripe was August Luther, ripe on June 10th, and that Michel was not ripe before June the 12th, so that it would appear

that it takes the August Luther several days less time to mature and ripen its fruit from the blossom time than it does the Michel; that is a distinct advantage, for being in bloom two days behind the Michel, it may miss an early frost that so often hurts the Michel, and then ripen its fruit much earlier than the Michel under those conditions. This season there was a frost but it did no injury to speak of to the Michel; it cut a flower or two in some places.

The August Luther has perfect flower, is healthy, as vigorous a grower as the Michel.

The plant is more productive than Michel, good size and shape, somewhat like Michel but larger and with a slight neck, ripens all over at once. I am pleased with it after one years fruiting.

The Senator Dunlop is a staminate or perfect flowering variety; the first ripe were picked on June 15th, five days after the August Luther; and three days after the Michel. It grows very much like the old Crescent, makes a good wide row of healthy plants. If I am able to judge after one years fruiting, I am convinced that it is the coming market berry. It resembles in shape and color the old Wilson, the berry is solid and very firm and large. I feel sure it will be a good shipper, I believe market growers will find the Senator Dunlop a great acquisition.

I would like just to mention another fine new variety that I was very much pleased with the past season. The Miller, a perfect bloomer; the plant is very large, as large as any variety I know, is very productive, the berry was very large and first ripe June 21st or 6 days after Senator Dunlop; the berry is bright red, and borne on very strong fruit stems. It comes when large berries are needed, it is medium in firmness, it was ripe one day before the Williams, is much larger, and is one well worthy of a trial. The past season was in many respects a very favorable one, notwith-

standing the very wet and cold time during the blooming season.

Jordan.

E. B. STEVENSON.

Best Raspberries and Gooseberries.

1240. SIR,—Please name the best raspberries and gooseberries. We have Cuthbert and Golden Queen, which have not paid us yet. In blacks we have Ohio, Palmer and Mills. W. V. M.

This is a difficult question owing to difference of conditions. In the Niagara district we still find Marlboro and Cuthbert, the two leading varieties of red raspberries for profit, the former for early market and the latter for late. The Golden Queen is unprofitable. At the Geneva station in 1896, Cline, Pomona and Marlboro produced the most early fruit, the respective yields per acre being 2,540 lbs., 2,480 lbs. and 2,050 lbs.; and among the best midseason varieties are London, Cuthbert, Royal Church and Kenyon, ranking productiveness in the order mentioned, the first giving a yield of 8,280 lbs. per acre and the latter 6,620.

The only late berry considered worthy of mention is the Talbot, which gave a total yield of only 1,540 lbs. per acre, about one-third of which was really late in season.

Of black cap raspberries we have great hopes of the Cumberland sent out this year by our association.

Palmer and Pioneer lead at Geneva in the amount of early yield with 3,760 lbs. and 2,570 lbs. per acre before midseason began, and a total of the whole season of Pioneer, 7,550 lbs.; Palmer, 7,080 lbs.; Hillborn and Mills were later and gave total yields of 6,870 and 6,330 lbs. respectively.

Of gooseberries, the Pearl is the leading variety for quantity, but there seems to be no money in growing gooseberries unless we can succeed with such large English varieties as Whitesmith and Crown Bob. No doubt if any person were to plant on a shady moist soil, such as is afforded by the northern slope of the Niagara escarpment, he might attain some success.

Book on Small Fruits.

1241. SIR.—Please say what is the best book on small fruits.
W. V. M., Nicolston, Ont.

Andrew S. Fuller has published a book entitled "Small Fruit Culturist," which covers this ground very well in a general way, price \$1.00; also one called "Strawberry Culturist," giving full information for the cultivation of this fruit, price 25c. These may be had from this office.

An interesting work in the strawberry, Terrey's A.B.C., on strawberry culture may be had of A. J. Root, Medine, O., for 25 cents.

1242. SIR.—Please give name of best early berry for prolific bearing and good shipper?

Nicolston, Ont.

WM. V. MILLER.

Where the Michel's Early has suitable conditions as to soil, etc., it is one of the most profitable early berries; at Jordan it is grown largely by some and it pays well, but it must have a certain kind of soil to be successful, for where it succeeds well in one place there are nine others where it is not worth growing. The Van Deman is almost as early, is larger, better color and quality and does very well in some sections. There are some new varieties claiming attention as extra early, such as August Luther and Johnston's early, but they have fruited only once with me, and have done well. The Excelsior is another early one that does very well in some soils. The Beder Wood is another early that some growers like best as an early berry, it is a good grower, productive not as firm as some, but a good one on many soils.

1243. SIR.—What is the Bubach like?

Nicolston, Ont.

WM. V. MILLER.

The Bubach is one of the best for mid-season, is one of the largest, is quite productive, strong, healthy plant. If your market is not far off the Bubach is the very

best to grow with the Clyde as a fertilizer as both bloom about same season.

For early berries you cannot go wrong in planting any of the following: Van Deman, Michel's Early, Beder Wood, Excelsior, Splendid, Homeland, Clyde, and find out for yourself which suits your soil best then grow that variety. Any dealer in plants has all these kinds listed.

Jordan.

E. B. STEVENSON.

Crown Grafting.

1244. SIR.—In the August issue of the Horticulturist, (see page 347) A. B. Carman asks if it is perfectly safe to cut off trees 5 to 8 inches in diameter, 3 to 5 feet from the ground and crown graft. In answer you do not say, no, emphatically, but at least leave it an open question. Whatever may be the conditions in Ontario; in this Province an orchardist who would cut a tree five inches in diameter, three to five feet from the ground, to crown graft, would be considered a fit subject for the lunatic asylum, and to the man who cut an eight inch tree his friends would at once apply to the Court to appoint a guardian. Personally we have lost a number of trees not as large as the smaller size mentioned, through cutting too large limbs for top grafting, and have learned from dear experience to cut sparingly of leading branches, and not check growth too suddenly.

In the natural orange groves of Florida, I have seen trees five to eight inches in diameter budded three feet from the ground, when the bud is fairly staked the tree is cut two thirds off and tipped over leaving it hanging to the stump. In a few months the bud has grown six or eight feet long, then the top is entirely removed, the stump trimmed up and covered with wax. In perhaps fifty per cent. of operations, this will in a few years make a perfect union, but in many cases there is a cankerous joint remaining. Such a method is however too radical for the low growing apple. There is an object lesson along this line now in progress in this county (Kings) which may be noted with interest. On the night of the 15th of June just passed, some desperados entered the orchard of Mr. A. D. Nichols of Aylesford, and with a saw cut off some thirty or forty trees. These trees were set some ten years and the largest were barely five inches in diameter. The miscreants supposed they had accomplished complete destruction. Mr. Nichols however grafted the stumps immediately and is hoping to save some of the trees thus wantonly destroyed.

For those interested in knowing the reason of things, I might say that Mr. Nichols is County inspector, under the Canada Temperance Act, and is an energetic officer. Down here in the east where we grow apple trees as a business, we think a grafter to succeed needs sound judgment and experience. I will venture to say, that if friend Carman turns "anybody" loose, in an orchard of

apple trees five to eight inches in diameter to crown graft, armed only with "a scion, some string and paper, mud, and a sharp saw," he will spend considerable time in the near future removing apple tree stumps, and will live to curse the day he tried such an operation.

S. C. PARKER,

Berwick, Nova Scotia.

Mr. Parker's remarks are mostly in place. We have so often written up this subject that it seemed almost superfluous to go into details showing the importance of removing only a portion of the top in any one season, and of leaving a sufficient quantity for foliage to continue the vigorous circulation of the sap while the graft is uniting, that we simply answered comparing methods.

We have at Maplehurst forty apple trees that were crown grafted about ten years ago by the writer, and each year are producing fine crops of Duchess and Yellow Transparent apples, and the work was done just in the manner that Mr. Parker despises, with "cion, string, mud, paper and a sharp saw." Three of the limbs on each tree 4 or 5 inches in diameter, were cut just above the crotch, leaving of course enough limbs with foliage

to continue the vigor of the tree. We set about half a dozen scions in each stub, which soon covered the cut with young growth, and the union was perfect.

While we agree with Mr. Parker that it is best to remove only a portion of the top each season, here in Ontario, where the growth is more vigorous than in Nova Scotia, even the "lunatic" who cuts off the whole top at once, will often succeed. We have three or four examples at Maplehurst of pear trees so treated, some five, some ten feet from the ground, that are to-day in full bearing and the place of the union can hardly be traced.

Simons Plum.

1245. SIR,—You will find enclosed fruit for name. The tree grows much like a peach, and the fruit is on the limbs different from the way other fruits grow.

Owen Sound.

M. FORHAN.

This is the Simons plum, which was distributed by our Association some years ago. It is of little real use, and the tree is short lived.

Open Letters.

The Fruit Marks Act.

SIR,—The remark with which you close your note on my letter in the last Horticulturist shows that you do not fully apprehend the present state of the law regarding the grading of apples. We have not to look to the future for "definite grades which will form a basis of sale to foreign buyers." Here is the law as it now stands:

No. 1 Inspected Canadian apples shall consist of well grown specimens of one variety of nearly uniform size, of good color, sound, free from scab, wormholes and bruises and properly packed.

No. 2 Inspected Canadian apples shall consist of specimens of one variety, reasonably free from the defects mentioned in class No. 1, but which on account of inequality of size, lack of color or other defects could not be included in that class."

See *Victoria 56, Chap. 35, Section 1.*

I think you will agree with me that these are well defined grades and that they furnish a basis for foreign sales.

The principal merit of *The Fruit Marks Act*,

1901, consists in the foundation which it lays for the prosecution of those who mark fruit packages falsely, or who by facing the packages with superior fruit give a decidedly false representation of the contents. It does not lower the standard, but it furnishes a good basis for proceedings under the Criminal Code against flagrant offenders.

The weakness of the Act consists in the fact that the inspection which it authorizes is not to be made under the General Inspection Act which provides for the appointment of only qualified inspectors.

Your remark that 80 or 90 per cent of Canadian apples, as usually packed by speculators, are blemished, is in my opinion unwarranted, and is calculated to injure the fruit trade of Canada. Here is what Prof. Robertson, Commissioner of Agriculture, said in 1898 on this point in giving evidence before the House of Commons Committee of Colonization and Agriculture.

"On the whole in England I did not find more than two or three per cent of the apples not honestly packed; I mean by that, barrels that are faced by fine apples and filled with poor ones. There

has been a large percentage of apples landed in Liverpool in a damaged condition by heating on the voyage or otherwise, but I do not think that more than two or three per cent were packed dishonestly."

This may be an under-estimate and it is certain that a great deal of bad packing is done for the home market. The true remedy, however, cannot be found in lowering the standard, mixing 10 or 20 per cent of culls with the best fruit and marking the packages A No. 1 or No. 1. The Parliament of Canada could legalize such a method of packing and marking, but it could not make it honest.

There is no reason why culls, as such, should not be sold at their face value

I am not, as you assume, entirely without experience in packing apples for export. I am sincerely yours,
D. FERGUSON.

Tulloch ave., Charlottetown, P.E.I.,
Aug. 19, 1901.

We have to thank the Hon. D. Ferguson for calling our attention to the wording of Section 1, Chap. 35, Victoria 56, which was originally prepared by the writer and published in this journal in Vol. 15, C.H., page 129.

In our draft of grades prepared ten years later, we thought we had made some improvement in the wording. First the name of the grades was objectionable.

The term No. 2 is now commonly applied to apples which are so blemished that they are unfit for export and only be sold for the evaporator or the cider mill. So we proposed to establish two special grades of export apples, A1 which means

'Well-grown specimens of one variety, sound, of nearly uniform size, of good color for the variety, of normal shape and not less than ninety per cent

free from scab, worm holes, bruises and other defects, properly packed and marked in a plain and indelible manner with the minimum size of the fruit in inches (or fraction thereof) across the core of the fruit."

And No. 1 which means

"Specimens of one variety, sound, of fairly uniform size and not less than eighty per cent free from scab, worm holes, bruises and other defects, properly packed and marked in a plain and indelible manner with the minimum size of the fruit in inches (or fraction thereof) across the core of the fruit.

Now possibly our honorable friend is correct in saying that we should make no allowance for even a small percentage of imperfect samples, but, in such a case if an inspector were very exacting, we fear that even some of the barrels packed by our honorable friend might be found at least slightly lacking in perfection.

In our opinion the most important part of the whole thing is the requirement that the *minimum size* of the fruit be marked on the head and this has been entirely eliminated.

Our first thought was that all A1 apples should be $2\frac{1}{2}$ inches and upwards in diameter, and this really the best plan; but perhaps A1 Snow apples and some other small kinds would not reach that size, and therefore we have contented ourselves with asking to have the minimum diameter in each case marked on the barrel, separate from the grade mark.

Our Affiliated Societies.

ORILLIA.—At a meeting of the joint committee of the Board of Trade, the Town Council and the Horticultural Society, held on Monday evening, the condition of the streets, boulevards, etc., was considered, and it was resolved that, whereas, a large number of the members of this committee were present at a meeting of the Town Council in the month of June, and at the said Town Council meeting the views of this committee were urged on the attention of the Council, and subsequently a promise was made by the members of the Council that certain lines should be followed in dealing with the planting and pruning of shade trees and

the care of the boulevards, and that an overseer of shade trees should be employed, and that boxes for the reception of waste paper should be placed at various points in town, this committee now regrets to find that none of the measures promised by the Council have been carried into effect, and we would again respectfully urge upon the Council the necessity of at once giving the matter of proper care of the streets and boulevards such a measure of immediate attention as will make them more attractive, in view of the numerous summer visitors who may be expected to arrive in town during the coming weeks.



FIG. 2158. THE TRIUMPH PEACH.

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THE TRIUMPH PEACH.



VALUABLE commercial variety, to follow the Alexander, but not very popular on account of its heavy coat of down, its dull color, and its susceptibility to rot.

ORIGIN : Georgia, seed of Alexander.

TREE : vigorous, hardy, very productive, subject to twig blight and leaf curl.

FRUIT : 2 inches long by $2\frac{1}{2}$ broad, roundish, somewhat shouldered and flattened; color, yellow ground nearly covered with red and markings of very dark red; cavity, deep; apex, small, in a decided depression; suture distinct; pit, semi-cling.

FLESH : yellow; texture, fine, juicy; flavor, sweet, rich and excellent.

SEASON : August 15th to 20th.

QUALITY : good.

VALUE : home markets very good.

ADAPTATION : Michigan, Ontario, New York.

PEACHES IN 1901.

The season opened at Maplehurst on the 27th of July, with the SNEED, the earliest good peach, and one that well deserves to be planted freely. It is agreeable in flavor, very juicy, but a poor market peach, because it ripens too rapidly; but it is much more

desirable for dessert than such varieties as Alexander, Hale's Early, Early Purple, Rivers, etc. For shipping it must be picked while still quite firm. On the 1st of August we found many prematures already overripe and fallen.

The ALEXANDER succeeded this variety about the 5th of August, and kept up the shipments until about the 13th. Owing to the scarcity of the fruit the prices of these early varieties were better than usual.

The TRIUMPH peach was harvested between the 15th and 21st of August, and was the best market peach of its season at Maplehurst. It is a yellow fleshed peach, and not a close clingstone as most early peaches, so that it suits a demand in Canada for yellow fleshed peaches. The tree is vigorous and productive, but is inclined to blight as the fruit ripens if conditions favor, a disease which sometimes attacks both twigs and fruit. The fruit is dull in color and very thickly coated with down, which stands in the way of its popularity.

EARLY RIVERS is a white fleshed peach about the same in season as Triumph (August 15th to August 25th in 1901) and was at one time largely planted in Ontario. We

harvested about two or three hundred baskets in 1901 at Maplehurst, but found them the most unsatisfactory of any peaches for shipping, because they are so tender in flesh and ripen so rapidly. Besides every mark causes discoloration.

GREENSBORO, a new white flesh peach from North Carolina with red cheek, above medium size and rather attractive, is also of about the same season with the Triumph. It is also too tender in flesh to be a profitable market peach; still it is much superior to the Early Louise.

HYNES, is another white flesh early peach of the Alexander type, more agreeable for dessert, but averaging smaller in size. It ripens about the 20th of August, and we judge is not likely to be much planted for market, as it is much inclined to rot on the trees and seems to be quite subject to yellows.

The YELLOW ST. JOHN was the first really good yellow peach, and it colored up beautifully about the last week in August, when fine samples would almost pass for Early

Crawford. It is a valuable market peach, but when it was left to hang into September, there was a great waste from rot.

THE CHAMPION came in about the 1st of September, closely following the Yellow St. John and the last were gathered about the 7th with the first Crawfords. It is a beautiful white peach with red cheek, and of large size frequently measuring $2\frac{1}{2}$ inches in diameter. The stone is free, the flesh is white, tender, juicy and the flavor is delicious. We consider it the best dessert peach of its season.

The EARLY CRAWFORD began ripening on the 6th of September, and, when it is going forward, really no other variety can compare with it either for size, beauty or general excellence. The crop was fairly good, and the price from 75c. to \$1.00 per basket. Where the trees were highly fertilized the increase in productiveness was very evident.

FITZGERALD came in about the same season as Crawford, and seemed to be similar in many respects.

THE FRUIT MARKS ACT.

Since our remarks on page 396, we have received from the Department of Agriculture some copies of the latest revision of this Act by the Senate of Canada, and find we have really got in this quite a different thing from what we asked. Indeed, instead of having too little, we have too much. We asked to have two fixed grades established with a definite name for each, and any one using these certain grades would be subject to inspection; this Act makes every closed package subject to inspection. We asked that the name of the packer be placed on such packages only; but this Act requires the name upon *every* package whether it be 1st or 2nd grade. We asked for certain fixed


grades to be so defined that there would be no confusion; this leaves it open for considerable dispute as to what grade is intended by the designation used.

Now in our home markets it is the constant custom to send No. 2 or second class under a number which identifies the shipper to the consignee. Such fruit may as well be sold in that way and we think many growers will strongly object to the change.

The Act is now so sweeping and so general that it will probably be difficult of operation.

The whole matter will be freely discussed at our annual meeting in Cobourg next December.

PAN-AMERICAN HORTICULTURE—IV.

HE AMERICAN POMOLOGICAL SOCIETY held its biennial sessions at the Epworth Hotel, Buffalo, near the Exposition grounds, on the 12th and 13th of September, and our visit that month was timed for that occasion. Many prominent members of our Association were in attendance and thus came in touch with the leading American horticulturists. Through the instrumentality of Mr. A. W. Taylor, the secretary, who has also been made a government official, plans are being made by the United States Department of Agriculture for extended experiments in the export of tender fruits in cold storage, and therefore the writer was asked to give some account of the work done in Canada in this direction.

He was followed by Mr. Geo. T. Powell, of Briarcliff Manor, who emphasized the importance of sending forward only our very best. "The foreign markets," said he, "are no place on which to dump all kinds of stuff." He pointed out the importance of refrigeration, both at the packing house and in transportation, the importance of knowing just at what stage of ripeness fruit should be exported; the sizes that would qualify a fruit for the export trade; the quality of a fruit that would gain for it a permanent market, and the proper packages in which to put them up.

Senator Dunlap, Illinois, had just returned from England, and found not only the English but the French markets open for our best fruits; in winter time this latter market is comparatively bare of really fine apples, and he had seen them sold in March at thirty cents each, and peaches as high as \$1.40 each! As yet he had only heard of one cold storage house in France.

Mr. Charles Forster, New York, said the annual increase in the export of apples was very great, and during the past twenty

years the quantity exported had increased from 81,000 lbs. to 2,000,000 barrels per annum. In Liverpool they were sold most rapidly; in 1896 as many as 50,000 lbs. per day had been disposed of in the public auction room, two packages from each lot being brought in, one of which was dumped and one simply opened to show packing. In this way fraudulent packing was at once exposed. Last season 200,000 boxes of Newtown pippins were sent to Scotland from California, and netted the shipper \$1.00 per box, and this trade is constantly growing, and to encourage this kind of trade in the case we need small cold storage compartments to accommodate smaller consignments. The first real experimental shipment of Bartlett pears from the United States is now being forwarded from New York to London, the results of which will be made public.

Two years ago Mr. Forster had tried a private shipment at a loss, but two cars of Duchess netted him about \$1.43 per half bushel box.

Our foreign markets are unlimited—Germany wants our apples, China, Japan, Siberia, Phillipine Islands and other oriental countries want our fruits, and soon we will have them open to us.

Prof. Corbett, of Washington, commended the use of tobacco dust, strewn about the trees and over the roots to prevent attacks of aphids.

Prof. Craig, in treating of the University Extension course—horticulture and agriculture—pointed out that during the past twenty years the number of farm products had been multiplied by twenty; and the number of workers in proportion had been divided by two; wheat that once cost thirty hours a bushel now costs only about ten minutes; corn that once cost forty-one hours now costs only eleven and a half. This shows how important these branches are becoming, and

how useful the dissemination of advanced methods.

Prof. Bailey, of Cornell, explained why the Fruit Growers' Associations of California were more successful commercially than eastern organizations, because they were unions of men interested in one thing—as for example the Prune Growers' Association, the Celery Growers' Association. True the individual grower loses his identity in such a system, but unless a man has something remarkable and distinctive about his products he finds this system much to his advantage. We should study carefully the co-operative methods of California, for before we are aware of it these live organizations, with their systematic shipments of carlots, will capture our eastern markets.

Mr. Morill, President of the Michigan Horticultural Society, gave an emphatic testimony in favor of growing only fruits of the highest quality, and of giving the highest cultivation. The "Dust blanket mulch" and "Horseleg irrigation" might be vulgar expressions, but they were of weighty significance to American fruit growers.

Mr. W. C. Barry would favor introducing no fruit unless it had high quality. The Jonathan apple for example ought to bring double as much money as the Baldwin, and there are plenty of people who would pay prices for fruits according to quality.

Prof. Webster, of Ohio, said that fruit men have more to fear from the late brood Codling moth than from the early brood. Indeed this is now our most formidable insect enemy. Last year the experiment had been tried of covering a tree with leno after the first spraying, and all fallen apples were removed on the 29th of August. After about three weeks the fallen apples were gathered, and under the trees protected with netting there were only about 20 per cent. wormy, and under those not so protected 70 per cent. were found wormy. This shows what might be accomplished by complete protection.

Next year he proposes trying to protect the trees from various insect pests by using an adhesive insecticide, and if he can discover a combination such as will serve all purposes, he hopes every fruit grower will be willing to apply it without compulsion.

THE FRUIT EXHIBIT is now overflowing with fruit, and equal in quality to any shown in the Horticultural building, and the names of exhibitors are too numerous for mention here. Among the varieties we noticed fine samples of Old Mixon, Elberta, Crawford and Jacques Rarripe peaches; large Wickson and Paragon plums; fine Moyer, Diana, Delaware and Worden grapes, etc. A fine case of pears, packed for export, was shown by Messrs. Van Duzer and Griffith, of Grimsby.

A special table had to be provided for a large collection of over 160 varieties of apples which we sent forward from our Ontario Fruit Stations to compete for the Wilder medal, and we are pleased to report that it was awarded a silver medal; as was also Mr. M. Pettit, our experimenter in grapes at Winona, for his collection of over one hundred varieties of grapes. Medals were also awarded Mr. W. M. Orr, of Fruitland, and Mr. Albert Pay, of St. Catharines, for their excellent collections, so that, in all, Ontario was granted four of these medals by the American Pomological Society.

The Pan-American Everbearing Strawberry is still on exhibition in the New York State exhibit by S. Cooper, of Delavan, N. Y.; the finest Elberta peaches shown were sent in from Michigan, they were simply immense; and the largest Satsuma plums were exhibited by the State of Connecticut. We also noted in Mr. Orr's collection, the finest Souvenir pears, and in Mr. Pay's the finest Bosc. Mr. Pay, pointing out his Wickson and Paragon plums, said he preferred the latter as being more productive. He showed fine Campbells Early grape, but doubted whether it was just quite as early as the Moore.



FIG. 2160. CANADIAN HORTICULTURAL ASSOCIATION.

CANADIAN HORTICULTURAL ASSOCIATION.

THE fourth annual convention of the Canadian Horticultural Association opened its first session in the City Hall, London, Ont., at 2.30 p.m., on Monday, August 5th, with a good representation from Montreal, Kingston, Toronto, Hamilton, Stratford, Chatham and other places. The mayor of the city, in a few well chosen words, welcomed the association. He was responded to by Thomas Manton, of Eglinton, in his characteristic manner. After this the president of the London Horticultural Society also spoke in words of welcome. Then routine business was taken up.

The secretary's report showed the association to be in a flourishing condition, each year gaining in membership and spreading its beneficial influence throughout the

Dominion. The treasurer's report showed the finances to be in excellent condition, with a neat surplus to the credit of the association. Trade exhibition judges were appointed and a considerable amount of miscellaneous business was gone through with.

After the adjournment, the members were invited by Gammage & Sons to visit their establishment. After the inspection of the greenhouses and grounds, light refreshments were served. Returning to the evening session Dr. Bethune gave a lucid and instructive lecture on insects, describing the different species and the several methods employed in their destruction. W. J. Lawrence, of Mimico, followed with an extemporaneous address on the advancement of horticulture.

On the second day, owing to the immense

crowds which were attending the London Old Boys' reunion, the local committee changed its plans and the trolley ride came in the morning instead of the afternoon. Luncheon was served at Springbank Park. The social feature was very much enjoyed by those present. R. W. Rennie, secretary of the London Horticultural Society, very ably acted as chairman at the banquet.


A short afternoon session was held at which a paper was read from Joseph Bennett, of Montreal, on what can be added to the present list of cut flowers to meet the demand of customers for something different. This brought up a lively discussion, but it was the general opinion that nothing of importance could be added to our present list that would be remunerative. W. Holt, of Hamilton, opened a discussion on the question of a uniform scale of prices in the plant trade and the subject was pretty thoroughly thrashed out, the conclusion arrived at being that the best man will always be at the top.

Hamilton was chosen as the next place of meeting.

President, Joseph Bennett, Montreal; 1st vice-president, C. Webster, Hamilton; 2nd vice-president, G. Robinson, Montreal; secretary, A. H. Ewing, Berlin; treasurer, H. Simmers, Toronto; executive committee for three years, Walter Munston, Toronto, O. G. Johnson, Kingston, W. J. Lawrence, Mimico.

In connection with the trade exhibit, only two were staged, Gammage & Sons, showing a good collection of palms, araucarias, ferns, begonia Gloire de Lorraine and others. A. H. Ewing, of Berlin, staged some very fine Boston ferns. The flower show of the London Horticultural Society did not contain as many exhibits as last year, owing to the fact that sweet peas in this section of the country are almost over. Notwithstanding these drawbacks, a very creditable display was made, containing upwards of 1,000 vases of flowers.

OUR EXHIBIT AT THE INDUSTRIAL.

 HE results of our experimental work in pomology is beginning to show itself in the increasing value of this annual exhibit. We had about 800 plates of fruits, of nearly as many varieties, on exhibition, a large number of them quite new, and exhibited in Ontario for the first time. Mr. John Mitchell, our plum experimenter, showed about 50 varieties of plums, all alphabetically arranged, a great convenience, for exhibitors in correcting nomenclature frequently came bringing their plates for comparison of varieties. Among his Japan plums, were the "Gold", which, on account of its golden color and red cheek, was much admired.

The Gold was certainly most attractive by reason of its rich golden yellow color, with tinge of red. It is said to be a remark-

able keeper and shipper, and has been introduced with great encomiums by Messrs. Stark Bros., of Louisiana. Probably this is the first time this variety has fruited in Ontario.

Hale seems very productive; a tree $3\frac{1}{2}$ years planted bore $3\frac{1}{2}$ baskets of plums; ripe about end of August. An Abundance plum tree planted five years in clay soil, produced ten baskets of fruit.

On the whole Mr. Mitchell considers the Japans too low in quality to be of permanent value for the markets.

There were a large number of the Domes-tica class of plums, and among them a seedling which he called Drake's seedling, season 20th to 30th of August, of yellow flesh, and with skin colored dull red on sunny side. He

said it was a favorite cooking plum. It is grown in the orchard of George Drake of Clarksburg.

Mr. W. W. Hillborn made a fair showing of varieties of peaches, the most prominent variety being the Champion, an excellent white flesh peach ripening just in advance of Early Crawford.

Mr. Hillborn also showed a collection of Japan plums, the largest and finest of which was the Wickson, but unfortunately the tree lacks vigor. It seems to be related to Simons plum, judging by the foliage, and is probably short lived.

Mr. M. Pettit of Winona, showed fifty varieties of grapes, well colored for the beginning of September.

The most prominent varieties in the collection were Berckman, a remarkable fine bunch 8 inches long, that promises considerable value, and Campbell's Early, named after its originator, Mr. G. W. Campbell of Ohio. It is certainly large and handsome both in berry and bunch, and, ripening along with Moore's Early or slightly in advance, it should be very profitable. The bunch is close, the berries hold well to the stem, and promise to be good keepers. Mr. Pettit speaks highly of Woodruff Red also, as a market grape; the Lady lacking in vigor, and the Green Mountain being too small in berry.

Mr. W. H. Dempsey showed about 120 varieties of apples, and among them very fine Duchess, Alexander, Kentish Fillbasket and Trenton. He has increasing confidence in the Trenton as a valuable early fall desert apple. It was a seedling raised by the late P. C. Dempsey, his father, who was so long on our Board of Directors. It is of good

size, covered with deep red, apparently of the Fameuse type, but a cross between Spy and Russet. Its season is October 1st. He has planted an orchard of fifty trees of this variety.

Mr. H. Jones of Maitland showed 33 varieties of apples, and among them the Brockville Beauty, a seedling of that section. It is a fine large red apple, of about the season of the Astracan, and he prefers it to that variety. He also showed the Scarlet Pippin, a rival of the McIntosh Red. It is certainly a beautiful dessert apple, and deserves to be universally grown as a fancy export apple.

Mr. Huggard showed a fine collection from his fruit station at Whitby, and Mr. G. C. Caston from his in Simcoe County. The latter showed in all seventy varieties of fruit.

This exhibit by our fruit stations was really the most interesting exhibit in the fruit building, and every year it increases in interest. Next year we shall require two long tables instead of one, and have made application for them already.

The first prize for forty varieties of apples, went to Prince Edward Co., as indeed we might expect, for apples there are not the failure that they are with us in the western sections. For 20 varieties of pears, both the first prize and the silver medal were taken by Hamilton exhibitors, this fruit being an excellent crop all about that part of the Province.

With the advice of the Dept. of Agriculture we have forwarded the whole collection to the Pan American, to compete for the Wilder Medal.

THE FIRST NATIONAL EXPOSITION OF MODERN DECORATIVE ART will be held at Turin, Italy, from April to November 1902; comprising the artistic and industrial productions which concern the æsthetics of

the street, and of the house and room. The American Park and Outdoor Association will probably exhibit designs for completed parks, home grounds and gardens, and photographs of the same.

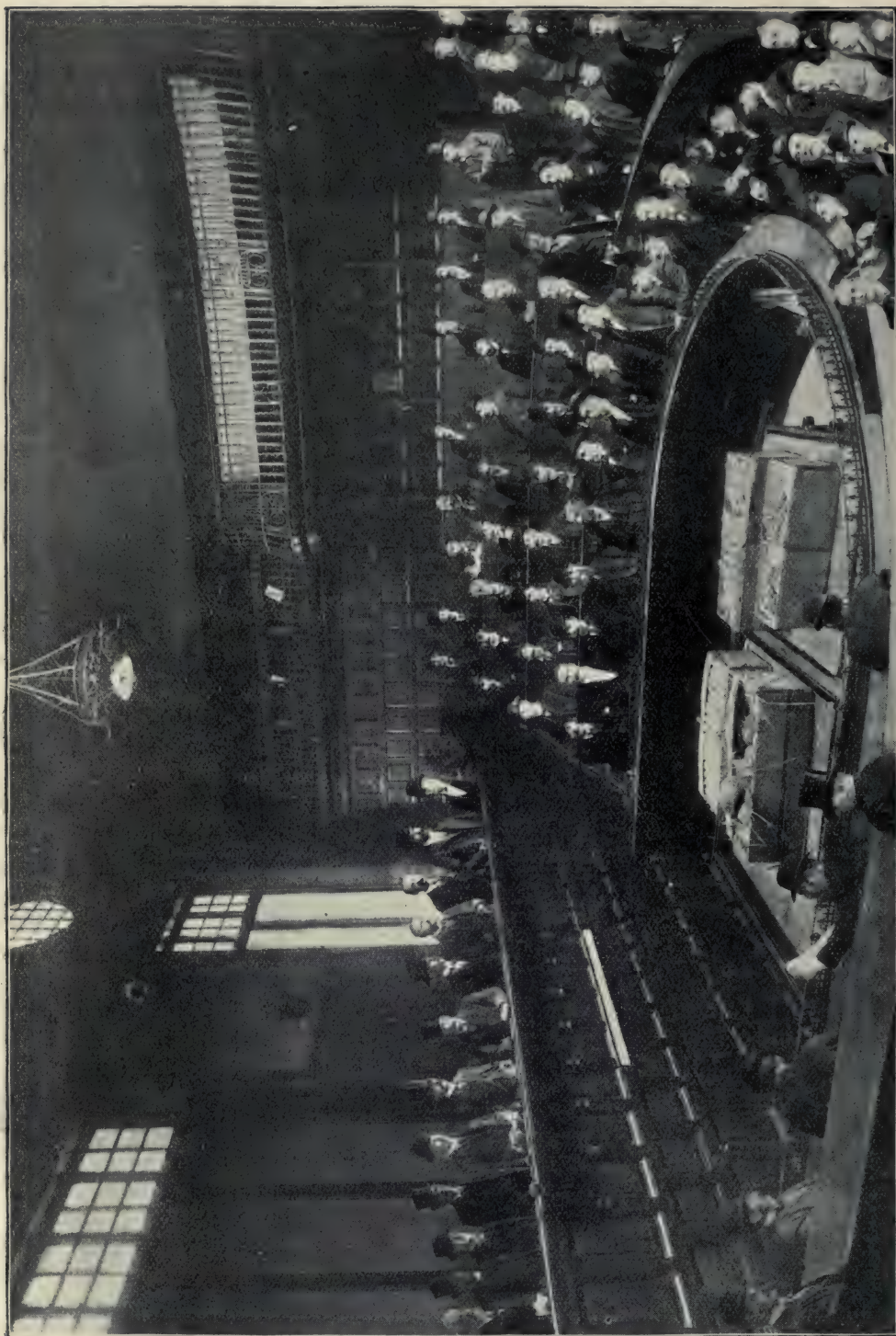


FIG. 2159. LIVERPOOL BROKERS' AND FRUIT BUYERS' ASSOCIATION.

LIVERPOOL BROKERS AND FRUIT BUYERS' ASSOCIATION.

THE frontispiece of this article shows the Auction Room of the Liverpool Fruit Brokers and Buyers' Association. The gentleman in the centre of the gallery is Mr. Woodall, of the well-known firm of Woodall & Co.

From small beginnings the Fruit Auction has now become the hub of the Liverpool fruit trade. Five years ago, when the apples imported into Great Britain aggregated 2,937,000 bbls., 1,598,294 were received at Liverpool and practically all handled through the medium of this association. The illustration only shows a small number of buyers, as on a busy day not only will the pit but also the galleries be crowded to the utmost capacity.

Not only the fruit kings of Britain, but down to the lowest barrow hucksters are there, each bidding on the class of fruit suitable to their trade. No place in England or perhaps in the world is there such a large congregation of buyers of such a varied class. Apples, of course, are only one of the fruits sold through this medium, as every kind of imported fruit is sold there; samples are exposed on these hydraulic hoists and in many cases tipped out for the scrutiny of the buyers, whose eagerness often causes an uproar like unto a stock exchange.

The total sales in this room some days are enormous; the beauty of this system is that it brings all classes of dealers together into competition.

There are six brokers who control this Auction, but other receivers who are not brokers sell their receipts through one of

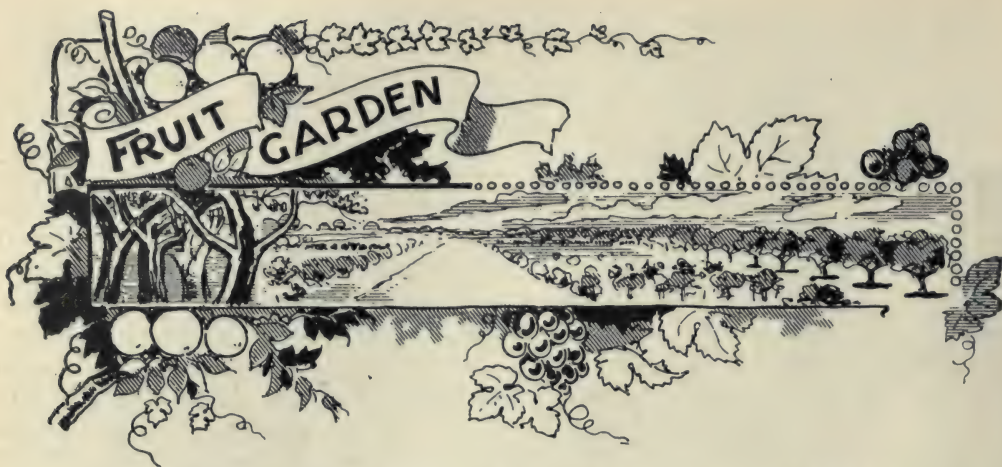
these six, who are Messrs. Woodall & Co., J. C. Houghton & Co., James Adam Son & Co., McGeorge & Jardine, L. Connolly & Co., Rogers Wray & Co., each taking their turn of 40 minutes and then 20, and sometimes selling till late in the evening.

The principal sales are held three days in the week, Mondays, Wednesdays and Fridays, and the large dealers from all the leading towns in England and Scotland come in to purchase. Stringent rules are in force, binding on buyer and seller, and the bid of any buyer is refused who does not fulfill the requirements. The Auction Room is strictly public, and catalogues of sales are issued by the brokers on the day following showing prices obtained.

This system of consolidating the buyer and seller has proved most successful in Liverpool, and Glasgow has for some years attempted to copy it, but so far it has been impossible to get all the receivers together; and in London this method has clearly proved its superiority over other systems, where different firms hold their sales at same time in different places.

Mr. Eben James, of Toronto, to whom we are indebted for this cut, represents the firm of Woodall & Co., who claim to be the first receivers of American apples on consignment to Liverpool, dating back as far as 1847, when Mr. Underwood, of Croton Point, N.Y., made a trial shipment in casks, and the original account sales is framed and hanging in the Underwood mansion, of which the firm is justly proud.





PICKING, PACKING AND MARKETING APPLES.

THE big end of labor and expense that goes into an apple crop is incurred in the picking, storing and marketing. Picking apples is, or should be, a "hurry-up" job. Every tree in the orchard of the same variety is ready to pick at the same moment, and should be picked the moment it is ready. Every hour that the picking of an apple is delayed after its clock has struck brings deterioration. In an orchard of one tree it is easy to accommodate the harvest to the requirements of the crop. But where apple people have several hundreds or thousands of barrels of one variety it is both difficult and unprofitable to practice such dispatch. For even if we assume, like a political economist, that labor is a sort of fluid to be turned off or on at will, the equipment for apple picking, the ladders, picking sacks, baskets, sorting tables, barrel presses, and all that, become an intolerable expense where they are provided in such abundance that a day or two's use in a year is all that is required of them. Most apple growers allow from two to four weeks for the apple picking. It has been reported that in 1897 the yield of one of the large orchards of Missouri was 120 carloads of apples, and that they were all gathered and either shipped or put in store in ten days.

Such expedition can only come with fine generalship and a perfect system of procedure.

There are different systems of picking, and there is much picking without system. The system followed grows in interest and importance as the number of people engaged is increased. When the "old man" works alone it is no great matter how he proceeds, but when the force is 100 or even a dozen hands the question of profit or loss may hinge upon whether that force works with the precision of an army or the discursiveness of a mob.

Some careful operators pick into baskets, and in turn hand the baskets thus filled to the packing-house or place of storage. But in the main apples are picked into seamless grain sacks prepared for the purpose, with a heavy wire sewn in the sack mouth for the purpose of holding it always open. Before this wire is put into place in the mouth of the sack, a ring an inch or so in diameter is bent into it. This ring is for the purpose of engaging a harness snap attached to a short rope or strap, the same being tied to one corner of the closed end of the sack, the purpose of it all being to provide a thing by which the picking sack can be suspended from the shoulder and expeditiously unslung

for emptying. The workmen will adjust the length of this tackle to correspond to his own length, and should be forbidden to throw the sack over his head. In apple picking, time is too precious for unnecessary movements.

When apples are barreled in the orchard, the packing gang, with portable sorting table keeps even pace with the pickers, the latter emptying their sacks as fast as filled directly upon the table. The sorting table is constructed with a slat bottom, slats half round, one inch by two inches, set one inch apart. A good size for the table is three feet by six feet. Sometimes they are made even longer, up to twelve feet in length. The sides of the table are six inches high. Its outlet is provided with an apron, which enables the packer to let the apples drop into the barrel without bruising. A piece of plank for the barrel to stand on while being filled and on which it may be frequently jarred, is an essential part of the equipment. The great advantage in this method of packing lies in the fact that it involves less handling than any other possible device. Its advantages, as compared with a permanent or temporary packing-house, are serious. With a packing-house the barrels are kept dry; the work of barreling is not interrupted by a slight shower; the culls are brought to one place, and, most important of all, the grade of the stock can be made to run much more evenly than with the orchard pack.

It is more and more apparent that where any considerable quantity of apples is raised there should be a permanent structure for receiving the apples, if not for storing a portion of them. A common form of apple house intended for storage is two storied—one story above ground and one partially below. The underground story will, of course, be frost proof; the upper story must be made practically so by hollow walls, sawdust packing, air spaces, or whatever method is used. In both stories bins are arranged on each side of a central alley. If the bins

are single decked, the apples are often piled up four feet deep by six to ten or twelve feet wide, according to the width of the bin. Such houses are often constructed double or triple decked. In such cases two and one-half feet is a common depth for the apples in the bins. Such a building must be fully equipped with ventilators and double sashed windows. If the ventilators are carefully kept open at night and shut by day, the temperature can be surprisingly controlled, and in ordinary seasons apples are often carried through to January 1 or even to March 1 without extraordinary loss.

Where apples are placed in farm storage the gathering is much simplified. Supposing the picking to be done in sacks, the hauling is done in barrels having but one head, on wagons fitted with barrel bottoms. The barrel bottom is made of two-inch planks bolted to crosspieces. It has no sides, but instead poles are secured to the top rings of the wagon stakes, in such wise as to be instantly detached, if desirable to have the pole out of the way for unloading. The ends of this rig are secured by ropes. If the "barrel bottom" is fourteen feet long it will hold sixteen barrels, which is enough for a load.

To make the apple harvest "go" with economy, each picking gang should consist of sixteen men and a boss. They will take four rows of trees at a time, and at each remove will take four trees in each row—sixteen trees, with a man for each tree. The wagon will keep along with the pickers, taking its stand every time in the center of the sixteen trees. The boss and driver will receive the apples from the pickers and carefully pour them in barrels. There should be wagons enough so that the work may not be interrupted for want of transportation. The boss may take charge of the wagon while it is loading and turn it over to the driver when loaded. In that way one team can be run without a driver. The manner

of unloading will depend upon the construction of the storage house.

When there comes a hot fall, like that just passed, when it hardly froze at all in November, the anxious orchardist longs for cold storage. And where fruit is perfect and intended for the late market and the cold storage complete, then it ought to be satisfactory. The charge for cold storage is commonly forty to fifty cents per barrel for the season to May 1. Freight, switch charges, shrinkage and unpacking will commonly make the cost about seventy-five cents per barrel.

Thrice and four times happy is the apple man whose fruit is near enough to a good market so that he can sell it in person, or by proxy, from his own wagon. Then everything goes at some price—culls, windfalls, seconds, and firsts. He pays neither freight nor commission. Most orchardists have harder ways of making sales. Some are harder than others, but the hardest of all is where the buyer is furnished the apples in piles for him to paw over at his leisure and

select or reject according to his fancy. Apple buyers of that variety should be shown the door that the lightning-rod peddlers go out. Before negotiations for a crop of apples are concluded, a perfect understanding should be reduced to writing, specifying what is to go and what is to be thrown out.

As a final word, many orchardists practice a false economy in saving their fruit at a loss. Whenever cider apples or evaporated apples are going at less than they can be delivered for with hired labor, the rot process of disposition should be introduced, except that where the farmer himself or his minor children have no other gainful employment, then the farmer and his kids will find even half wages the same as something found. But when people have paying jobs, their cider apples at twelve cents per hundred delivered on the cars or their evaporator apples delivered at the factory for ten cents per bushel will bring them nothing for their fruit and less than cost for their labors.

EDWIN TAYLOR,

Before Kansas Agricultural Society.

THE APPLE MARKET.

The Manchester Fruit Brokers write as follows :

Contrary to the expectation of many people the English apple crop now promises to turn out a fair yield in quantity and very good in quality. Advices from the continent of Europe are mostly to the effect that there is not likely to be a very large surplus there for export, but we consider that even here the estimates are likely to be exceeded because the weather prevailing on this side now is very favorable to the growth of the winter varieties. It is at any rate certain that for the next two months home and continental growers will be able to send in to

market very considerable quantities of apples, and, as other fruits are likely to be both plentiful and cheap, we do not consider that prices within the period named will run above last year's values.

Advices from Spain indicate that the crop of oranges this year will be an enormous one and, as this fruit will compete strongly with the sale of apples from the early part of November, we warn packers and shippers in Canada not to pay extreme prices. It must be remembered that the consumption of apples here falls off greatly when prices run beyond a reasonable limit.

THE APPLE BUSINESS.—II.

FRAUD EVEN IN LIVERPOOL.

Mr. Pritchard went on to show, although this was not perhaps just the sort of impression he intended to leave, that queer practices are not confined to this side of the ocean—that they extend to the innocent, dull-headed receiver in Liverpool.

“Dealers in Liverpool,” said Mr. Pritchard, “would sooner have a faced barrel than one running even all the way through. They are not deceived, because any barrel can be turned out on demand, and dealers see just what they are getting.”

M. H. Peterson said that, while this style of packing did not injure us in Liverpool, it would injure us in markets where buyers were not on to it.

Mr. James showed very clearly, however, that while Liverpool dealers may not complain of such packing, Canadian producers are very much injured by such a system even in apples sent to Liverpool. “The complaint does not come from the dealers,” said the latter. They are not deceived by the facing, and are probably able to sell a little above actual value a barrel packed in that way. It is the consumer, the man who buys for his own use a barrel in which the centre does not agree with the top, who kicks.”

THE AUCTION SYSTEM IN FRUIT-SELLING.

F. D. Cummings, of Portland, Me., gave a new turn to the discussion. He read a paper, in which he advocated the substitution of the auction for the commission system in disposing of fruit on this continent. “It is not,” he said, “considered exactly safe to leave uncounted money with a stranger, he knowing it to uncounted, and expect him to make returns of every penny and the profit earned by the money. But that is just what we do when we send fruit to a commission house for sale on commission. The unsatis-

factory nature of the present system is shown by the sort of laws it has been thought necessary to introduce for its regulation. In one State the law provides that a commission man may be called upon to show cause why he did not obtain the highest market price on the day of sale ; in another the producer of the fruit is given the right to go through the books of the commission merchant for the purpose of seeing what his fruit really sold for ; and in New York an attempt is being made to pass a law obliging the commission man to include in his return the name of the retailer to whom he has sold. How much better and less cumbersome the auction system, with its straight, clear-cut transactions.”

REJECTIONS IN LIVERPOOL AFTER AUCTION.

But Mr. Cummings' chief grievance was with the manner in which American apples are handled in Liverpool. “They have the auction system there,” he said, “but they have also the right of rejection for practically 36 hours after purchase. There should be no right of rejection. Prospective buyers have the right of examination on arrival ; they can, and do, use their hatchets to open any barrel they wish ; they can demand the dumping out of the contents of any barrel when the auction is on ; and still, after all this right of examination, they can reject practically 36 hours after purchase. This gives buyers an unfair avenue of escape, if the market goes wrong in the meantime. Once a sale is made there should be no right of rejection afterwards.”

A LIVERPOOL VIEW OF IT.

“We must remember,” said Mr. James, “that Liverpool is the greatest apple market in the world. We must remember, too, that the buyers have their views, and we as sellers cannot hope to dictate to them just

how their business shall be conducted. If a buyer purchases a lot of barrels, as 'tight' he should have the right to reject if when delivery is made they are found to be 'slack.' Remember this, too, that competition is too keen in Liverpool to render anything but fair dealing impossible."

"I have," said Mr. Pritchard, "known a lot of barrels to be 'tight' on Tuesday night on arrival, and 'slack' next day. The rolling about on the dock and the difference in atmospheric conditions caused the change."

"That sort of thing," said Mr. Dawson, "is a possibility, but a remote probability."

"The Canadian Government," Mr. James continued, "has maintained at great expense an agent in Liverpool for the purpose of seeing the manner in which Canadian produce is handled there. This agent has informed me that the only serious objection he had to make was the rough handling to which the fruit was subjected on arriving in Liverpool, but I told him if he had to handle 170-pound barrels all day, at 20c per hour, he perhaps would not be more gentle than the dock hands."

THE NEW YORK SYSTEM.

Mr. Forster, of New York, said that California oranges were sold by auction in New York without the right of rejection, and what was possible with oranges in New York should be possible with apples in Liverpool. "Grapes are sold in the same way," he added, "and that is the greatest gamble of the lot. The section from which the sample is taken may be worth \$6, and the rest not worth more than \$3, but we have got to take them."

"We are only wasting time in discussing this matter," said Mr. Peterson, "as the Liverpool buyers will do as they like anyhow."

CO-OPERATIVE SELLING SUGGESTED.

"I do not see why," responded Mayor Graham, warmly, "if those who really act

as our agents in Liverpool will not conduct the business as we want it done, we cannot send a man of our own over to handle the business for us. There are enough of us to do it. (Applause). When we buy lemons in Montreal we have no right of rejection. Why should such right exist in Liverpool, where there is unlimited freedom of inspection before purchase?"

"It must not be forgotten," said Mr. Pritchard, "that Liverpool is not the end of it. The apples landed there are largely forwarded to other centers. A buyer, 48 hours after buying, may have an order to send on to Dumfries or Edinburgh. That man does not want them to be forced to take melted apples which he bought on the basis of tight. If you remove the right of rejection you introduce the speculative element; you force buyers to guard against the loss that will follow being forced to take 'slacks' when 'tights' have been paid for, and the result will be that barrels that would bring a guinea under the present system will not bring over 15s. under the one you propose to exchange for it. Neither is it practical to have your own representative in Liverpool. Apples form a sort of surplus trade, and if the Liverpool buyers determine to freeze your representative out of business he will find apples collecting on his hands to such an extent that the Dock Board will have them thrown in the river. Besides, buyers, under the present system, have not the absolute right of rejection. They cannot refuse a barrel simply on their own statement that it is 'slack.' They must prove that it is so."

Mr. Cummings, in response to the implied threat as to what might happen if the association sent its own agent to sell in Liverpool, said it might be necessary to go still further and seek the co-operation of the grocers in towns beyond Liverpool, the men who sell direct to the consumer—thus bringing consumer and producer more nearly together.

A committee was, by unanimous vote, at a subsequent session, appointed for the purpose of endeavoring to have Mr. Cummings' views, demanding the withdrawal of the power of rejection after auction, given effect to.

ILLINOIS' SYSTEM OF SELLING.

Senator Dunlap, of Savoy, Ill., also spoke on marketing, but from the home market standpoint. "Some men," said he, "know all about production, but go lame on marketing. The selling of apples is different from the selling of wheat. There is a standard value for grain which everyone is familiar with. There is no such standard for apples. In Illinois different plans have been tried in the disposal of orchard crops, but the pretty general custom now is to sell by the barrel in the orchard, the buyer doing the picking and barrelling." Speaking of other systems of selling—of the sending of fruit to cities for sale—Mr. Dunlap expressed the opinion that the day is not far distant when the commission men as such will be eliminated and their places taken by fruit dealers, men who will buy the fruit outright.

BAD EFFECTS OF SELLING IN BULK.

Later on, too, an informal discussion arose on this general subject of marketing. Mr. Williamson said one of the greatest evils in connection with the fruit business was the buying of orchards in bulk. "That is," he declared, "a direct incentive to bad packing. If a man buys an orchard that way, and something happens to the apples on the trees after purchase, he is going to get the number of barrels counted on no matter how it is done. His No. 1 will be a little off. His No. 2 will be still more off; and his No. 3 will be the Lord knows what. This year the danger from this system will be particularly great, because, while the crop is perhaps the smallest on record, the amount of apples put up for sale may be very large. It is not nature which regulates the volume of apples

marketed; it is packers who by their grading fix the limit of the quantity which will be put on the market."

Another member of the convention said that in New York dealers prefer, when possible, to buy in the original package. "Apple producers should," he said, "so pack their apples in the fall that the fruit can stay in the package thus used until it reaches the consumer. The handling in repacking causes serious damage."

PROFESSOR ROBERTSON ON THE ENGLISH MARKET.

Prof. Robertson, fresh from Liverpool, added a valuable contribution to the discussion on marketing. "The Englishman is, said he, the best commercial man in the world—for England. He can present an account of sales which, while perfectly honest, will show the largest possible amount of charges for himself and the smallest possible amount of profit for you; and he will do all this with the blandest smile in the world. At the same time the market of London is the best market in the world for really gilt-edged products. A case in point: A Canadian apple-grower, for four consecutive years, sent the pick of his orchard to London, on consignment, a dangerous thing to do, and yet his apples netted him an average of \$3.51 in the orchard. That shows what can be done in London by discarding all small and inferior apples and sending the best only.

"There are two commandments lying at the very threshold of commercial success. The first is 'Thou shalt deliver goods as they are represented to be,' and the second 'Thou shalt not deliver goods in poor condition.' Observe these and success is assured in any line."

FAVORS STRAIGHT SELLING.

Prof. Robertson also touched upon the methods of late in England. "We are,"

said he, "sending nearly \$20,000,000 worth of cheese to Great Britain, and not two boxes to 100 are sent on consignment. The rest is practically the property of the party to whom it is sent in England before it leaves this side of the Atlantic. And that is the proper system; that is the system which should be adopted in the apple trade. The party to whom the goods are sent will then take much better care of the products than he otherwise would. A case in point: A lot of butter was sent on consignment to Glasgow during the time I was there. This, after having been carried to Glasgow under a system of cold storage provided for by the Dominion Government at a considerable expense, was left exposed for 48 hours during the hottest weather on the dock at Glasgow. Other like goods, sent at the same time, but but not on consignment—goods which had been sold before leaving this country—were hurried at once into cold storage."

"Yes," said Prof. Robertson, in answer to a question, "the party to whom the goods were consigned knew the butter had arrived, because he had taken samples from it for the purpose of making sales. Why did he leave it exposed? Because he was not obliged to take up his draft in payment for the butter before delivery was accepted. If he could sell it by sample, before actually accepting delivery, he would, possibly, save the use of two or three thousand pounds in the bank for two or three days. It is because of things like this I am going to start a campaign in this country against sending goods to England on consignment."

Speaking particularly in regard to the matter of apples Prof. Robertson said: "Something more than sorting as to size is necessary. There must be sorting, also, in regard to the condition of ripeness. This is particularly necessary in the matter of early fruit, as otherwise the over-ripe fruit will be apt to spoil that not so far advanced."

IMPROVED TRANSPORT FOR APPLES.

Dealing with the matter of accommodation for shipping apples, the speaker said: "Apples should not be sent by a vessel which is without facilities for ventilating the chambers in which the fruit is stored. We have just succeeded in making arrangements with all the lines leaving Montreal by which provision will be made for this ventilation. Three lines have agreed, in addition, to provide mechanical refrigeration, by which air will be reduced to 50 degrees before being driven through the hold in which the apples are held. The advantage of this is apparent when it is remembered that in passing through the St. Lawrence the temperature may be up to 70 or 80 degrees. Ten steamships have provided this mechanical refrigeration, and twenty-five will have a fan equipment for ventilation."

"We have also asked for ventilated cars, but the trouble is that the freight traffic of this country is developing in such a remarkable way that it is utterly impossible for the railways to keep up with the demands even for ordinary traffic. The best we can do is to whitewash the cars with a spray pump and leave the doors open for about three inches, thus providing for a partial system of ventilation."

AMERICANS INVITED TO SHARE A GOOD THING.

Speaking to the representatives of the United States apple industry present, Prof. Robertson, on behalf of the Dominion Government, offered to them the benefit of the facilities provided for the Canadian shipper. "We will be glad," said he, "to see your apples going by way of Montreal, because we believe the more apples that go that way the greater will be the disposition on the part of the steamship people to furnish an efficient system of ventilation, etc."

"We have," Prof. Robertson went on again, "gone further than this. We have

made arrangements under which the name of every ship on which fruit is roughly or improperly handled will be published by the department all over Canada. Some steamship owners say they will sue us for libel if we attempt this, but we are ready to stand a suit in order to effect the reform necessary." (Applause).

WHAT TASMANIA IS DOING.

Mr. Powell also referred, in the course of his address, to the question of transportation. "Tasmania does not," he said, "produce anything like as good a quality of apples as is produced in New York State. And yet Tasmania, by her improved system of transportation, can send apples 14,000 miles, largely over tropical seas, land them in London in better condition than we can, and get a better price." Mr. Powell congratulated Canada on the fact that the Canadian Government had done so much towards securing improved facilities for transport of Canadian apples by sea.

YIELD AND DEVELOPMENT—GUESSES AT THE CROP—PROBABILITIES OF DEVELOPMENT.

There was no point on which the members of the convention differed more widely than in their estimates of the apple crop of America. The president estimated the value of the crop in the United States alone at something like three hundred million dollars. This would be equivalent to two hundred million barrels at \$2.50 each. Mr. E. N. Loomis, of New York, said the Fruitman's Guide placed the merchantable product of the United States at forty million barrels, with the amount actually barreled and marketed at twenty-five million barrels. Mr. Powell, of New York, estimated the crop at 100,000,000 barrels. The Year Book of the American Agriculturist, an excellent authority, placed the bumper crop of '96 at seventy million barrels. As Mr. Loomis said, it is largely a matter of guesswork anyway, but the figures given by the Agriculturist would

seem nearest the mark. It does not seem possible that the United States, in any one year, has produced more than seventy million barrels of marketable fruit. Even this would allow very close to one barrel per head for every man, woman and child in the United States, after allowing for the export trade, and it is fairly certain that is the outside limit for the quantity of apples consumed in the Union. But even at this figure the industry is an important one; and, one point on which all agreed, and on which all seemed justified in agreeing, is that the industry is growing by leaps and bounds, and has before it almost unlimited possibilities of expansion.

POSSIBILITIES OF FUTURE DEVELOPMENT.

But what has been accomplished is but the beginning. It remained for George T. Powell, of New York, to point out the possibilities of the future.

"People predict the coming of a period of over production," he said. "That same prediction has been made every year for the last forty years, and yet not once in all that period have we had too many apples to meet the demand. We can increase the consumption at home by 100 per cent.; Germany has just got a taste of our good apples, and an enormous market in consequence is opening up in the German Empire; it is only a question of time until a demand comes from Japan and China, and when that time does come, even if our production is double and treble what it is now, we shall not produce enough to furnish our customers in the East with one apple apiece. It is merely a question of producing the right quality of fruit and arranging for proper distribution and marketing. Solve that problem and we shall not produce too much even when all our possible apple area is producing to its fullest extent.

"And to what extent may production not be developed? Just see what has been

accomplished under the crude methods employed in the past. I made a special investigation in 1898 as to the profit then being realized from apple production in that State. One authority from which I obtained a report estimated the average value of the return per acre from apple-growing in the State at \$100. On twenty adjoining farms in one county, the average return for five successive years (two of these years being failures), was put at \$85, or equal to 6 per cent. on a valuation of \$1,400 per acre. On some farms, in single years, the return per acre ran up as high as \$550, and in one case to \$700. When, added Mr. Powell enthusiastically, "we think of what has been accomplished under the conditions existing in the past, we find it impossible to compute the possibilities of the future. One thing certain is that no occupation offers greater security to a young man than fruit growing, and there is no safer investment for capital than is offered by a good fruit farm."

CARE OF ORCHARD. NO ONE ESSENTIAL 'IS
SUFFICIENT IN ITSELF.

Senator Dunlap, in an address on Commercial Orcharding, said one thing which, although a sort of commonplace, illustrates in a striking way why orchard work must necessarily be confined to a comparatively few.

"You cannot," said he, "plant an orchard to-day and reap your reward to-morrow. Moreover, owing to the peculiar difficulties encountered in this business, fruit growing is really the work of specialists."

There are not many specialists, and not many in a position to wait; therefore fruit production is not a business for the masses.

Mr. Dunlap emphasized the point in regard to the necessity of special knowledge by mentioning something which had occurred in his State—something which has, in a measure, its counterpart in our own Niagara district, with peaches substituted in the latter case for apples in the former.

"Southern Illinois is," said Mr. Dunlap, an almost ideal place for the production of apples, and ten years ago, when the industry was at its beginning there, some record-breaking crops were produced. Business men, their imaginations fired by the big profits that were apparently to be so easily made, invested largely in trees and land. There are thousands of acres of apple orchards planted by these men that have never returned a cent, and never will do so. Why? Conditions have changed. The introduction of fungus diseases and insect enemies have rendered production more difficult, and these men have not the knowledge or the patience to grapple with the difficulties that have arisen."—*The Weekly Sun*.

NEW FRUITS.

STEELE PEACH.—"SIR,—I am sending you by this mail a few peaches. These have been produced on a tree which I have had in my garden for 14 years. They are a seedling and I have named them the 'Steele.' These samples are only about $\frac{2}{3}$ of the usual size and are not of as good flavor as usual. This is due I presume to the age of the tree and to the season and also to the fact that there are a great many

on the tree this year, about 2 bushel. The tree has borne well every year since it commenced with the exception of last year and one previous year when we had a severe June frost. It has never been injured in the least by the winter, although we have occasionally had a temperature of 20° or more below zero. The fruit ripens at end of August usually, but is a little later this year.

"As this is not in the peach growing dis-

tricts I thought this might be of interest to you.—M. STEELE, M.D., Tavistock, Perth County."

The hardiness of this peach may make it very valuable for sections outside the peach belt. Coming in with Yellow St. John and Champion it would not be of any great value where these succeed. The peach is attractive, skin cream with red cheek, flesh white, tender and juicy, of the flavor of the natural fruit which is excellent eaten with cream and sugar.

THE RUSSELL is a new apple shown us on the 3rd of September at the Industrial by Mr. J. P. Cockburn, of Gravenhurst. It originated, he said, near Ottawa, in the County of Russell. It is another of the Fameuse type, $2\frac{1}{4} \times 3$ inches in size, a bright red color, and white tender flesh, very agreeable. Its season is September.

THE MAMMOTH DEWBERRY is shown in the Rural New Yorker, of Sept. 7th.

THE MCPIKE GRAPE, a seedling of Worden, was on exhibition in Buffalo. It seemed to be similar in appearance and season to Campbell's Early. It is being introduced by the Silas Wilson Co., of Atlantic, Iowa, and was originated by H. G. McPike, of Alton, Ill. The introducers speak of it as follows:—

We have in this new wonderful grape great size, superior quality, hardy wood and bud, very large leathery leaves. Fruit ripens same season as Worden, which is one week earlier than Concord. This new grape ripens evenly, and only has one and two seeds; skin tender and pulp melting. Mr. J. P. Jones, a member of the Alton Horticultural Society of Alton, Ill., one of the oldest horticultural societies in the great Mississippi valley, reported to the Alton Horticultural Society that he made a trip to England in the fall of 1898 and took with him a basket of this wonderful fruit, and after being on the road 13 days the fruit opened up in Liverpool in fine condition and was pronounced worth 60 cents per pound in Liverpool market. This grape has taken all premiums at all the great state fairs in the fall of 1898 and 1899 wherever exhibited, over all competitors, including Campbell's Early. Many testimonials could be printed if space would permit regarding the success of this wonderful grape.

PRACTICAL SUGGESTIONS FOR MARKETING FRUIT.

*F. A. WAUGH, VERMONT.

IF it seems necessary to ship to two or three markets, stick to a single commission house in each city, but, as far as possible, ship to a single market. The man who is conducting business on a very large scale, like J. H. Hale or Roland Morril, and who can keep his hand on the commission men, can afford to transgress this rule. Such men are superior to all rules. Most of us are not. For the ordinary fruit grower and shipper this rule of dealing always with one commission firm is of the utmost consequence.

Ship the same varieties year after year, and make the grade just as uniform as pos-

sible. Even if something short of the best fruit is shipped, uniformity of grade is highly advantageous. The commission house knows what to expect, and customers get used to the brand and the grade. There are hundreds of shippers growing all classes of fruits whose products are commonly already sold when they arrive in the market. Uniform and honest packing does it.

Select a brand which is neat, catchy, and not too large, and see that it goes on every package. Some men have made reputations and money out of their brands.

Grade and pack with the most rigid honesty. Don't try to cheat a commission man. It can't be done. The commission man has the last turn, and he is absolutely sure to protect himself, whatever happens to the

*From advance sheets of Prof. F. A. Waugh's book entitled "Fruit Harvesting, Storing, Marketing." Published by Orange Judd Co. Price, postpaid, \$1.


shipper. Moreover, any evidence of dishonesty immediately destroys the dealer's confidence in that consignor, and selling is seriously interfered with. Thereafter packages must be opened and examined before they are sold, and they are not offered to the best customers.

Follow the advice of the commission man

as far as possible when you have settled on a good one. Ship fruit when he wants it. Send the varieties and grades that he wants and in every other feasible way conform to the requirements of his business. His business is the fruit grower's business. He is the fruit grower's agent. He should be treated as such.

UNDER-PLANTING IN ORCHARDS.

CHAS. A. KEEFER.

HE fruit grower is often at a loss to know how to treat the orchard until the trees come into full bearing. The most common practice is to grow corn in the orchard a few years, and then, about the time the first crop sets, to seed down.

The grower should keep in mind all the time that the fruit trees are to bear the crop to which the land has been devoted, and always their welfare should be the first consideration. While this is true, the land should not be left idle until the trees come into fruit, not only because the expense of maintaining clean cultivation between the widely spaced trees would be too great, but because the soil, especially on sloping sites, would actually deteriorate under clear tillage.

Low growing crops are better than high growing crops for orchards, because they shade the soil almost equally well, and do not shade the trees. When corn is planted among young orchard trees, the lower branches of the trees are often so shaded as to greatly interfere with the work of their leaves. It must be remembered that leaves are at once the lungs and the stomach of trees, and that they can only do their work of assimilation in full sunshine. In a densely headed tree one may see that there are comparatively few leaves toward the center—there the branches are bare, while the outermost branches have the most vigorous foliage. Nothing should be planted in a

young orchard, then, that will shade the limbs of the trees.

The crop to be used in the orchard depends principally upon the condition of the land. If it is newly cleared land almost any hoed crop may be used—potatoes being one of the best. If the land is old, and especially if the soil is thin, an effort should be made to enrich and deepen it by planting to cowpeas which should be plowed under as they approach maturity, and be followed by a winter cover of rye. It is a too common practice to sow cowpeas and cut the crop for hay, the grower thinking that the roots of the peas are sufficient to enrich the land. While the roots of the pod-bearing plants are the gatherers of nitrogen, by far the greater part of the plant food gathered by the roots is stored in the leaves and seeds. The man who cuts the cowpea crop and in turning under the aftermath imagines he is doing the best for his land is like the man who would sell his oats and feed the straw to his stock, thinking this the best possible treatment for the cattle. Not only will the available nitrogen be greatly increased by turning under the cowpeas, but the mass of vegetable matter thus added to the soil will improve its character, making it looser if too compact and more firm if too sandy. Green manures are peculiar in being a corrective for both sandy and clayey soils.

Cowpeas should not be used in land that is very fertile, as the added nitrogen returned

to the soil will stimulate the growth of the fruit trees too much, and thus induce a great growth of wood at the expense of fruit. There are few old fields, however, in which this danger need be feared, and hillside orchards, where the washing of the soil is a principal cause of loss of fertility, may well be planted to this soil-improving crop.

In using such crops as cowpeas and rye, which are drilled or sown broadcast, the ground immediately about the trees should be well tilled, either by cultivating a strip on either side of the trees, or by hoeing a wide space around them.

The constant cultivation demanded by hoed crops is the best treatment that can be given orchard land. It prevents the tree roots from growing too close to the surface, as they are apt to do in grass land, keeps the soil well aerated, thus improving its

chemical condition, and by maintaining a loose surface cover saves the moisture in dry times for the use of the cultivated plants. The trees share these advantages with the plants that may be planted among them. In young orchards, by good judgment in the selection of such crops, they will frequently more than repay the expense of cultivation, and thus one may establish a vigorous orchard at comparatively little outlay.

In the bearing orchard no cover crops should be grown except to prevent soil washing, or as green manure. One of the most impressive things in the vast orchards of California is the wonderful thoroughness of their cultivation. The owners must have discovered what few eastern orchardists seem to realize, that the fruit tree repays high tillage as well as any other plant.

COLD WATER REFRIGERATOR.

FOR the last two years I have used a homemade water refrigerator in the farmhouse which has some advantages over ice. It saves the expense of putting up ice; saves labor of getting it out and putting it into the refrigerator. It is purer than ice and furnishes drinking water of guaranteed quality, which is better for the health than ice water. Director Sage, of this state, makes a strong point against putting ice into a refrigerator and then breaking off a little to put into drinking water—this on the score of health.

The windmill sends the water from a drilled well to the tank in the top of the refrigerator through the short pipe indicated by dotted lines, the over-flow runs back

through the other pipe and goes to the stock water tank. The water is needed for stock so none of it is wasted. It is also needed at the house, and faucets permit its being taken out at the house as desired. Shelves in the lower part hold the milk, butter, fruit and whatever else is desired to be kept cold, and the wife does not have to go down cellar after butter, nor to the well for water, nor the man of the house have to get ice for which he has no need.

The tank I use is four feet high, three feet wide and one foot thick, and made of galvanized steel. A cupboard-like structure without shelves in the upper portion affords a good place to locate this tank, and the windmill will do the rest. The pipes run underground from well to house, in a trench six feet deep, so to be free from frost. A stopcock at the pump allows the water to be sent to the house when desired, or direct to the stock tank without first passing through the house tank.—*Am. Agriculturist*

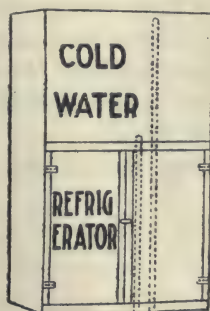



FIG. 2161.

OUR CANADIAN FRUIT AT BUFFALO.

IR,—Since your visit here in connection with the very successful meeting of the American Pomological Society, I desire to report, through the columns of the *Horticulturist*, to our many Canadian friends that our Ontario Fruit Exhibit here at the Pan-American Exposition has not abated in interest, but rather from day to day has been growing in value and popularity. The very large supplies of grapes, peaches, plums, pears and apples, which have come forward from all parts of the Province, have so fully taxed the capacity of our large section, that we have been obliged to resort to quite a number of expedients in order to find room for properly displaying the beautiful samples which have been sent to us. In this short letter it would be impossible for me to mention the names of the many exhibitors who have been forwarding samples. Their names will, however, appear in my report, which I shall have the honor of preparing at the close of the Exposition. I may say that it has been a matter of surprise to me that in what is generally considered to be an off season for fruit in our Province that it has been possible to send me such fine samples and so many of them, of our best fruits, and time and time again as the days pass by, we have been complimented upon the appearance and quality of our fruits by visitors, who are entirely disinterested and who are fully competent to judge horticultural exhibits. In a few days the preliminary list of awards for

our entries in connection with permanent displays will be made, and I have every reason to believe that they will be quite satisfactory to the Province and to all those who are more particularly interested.

The Michigan exhibit of peaches, in which state, I understand, they are harvesting a full crop this season, has been a close competitor with us during the past two weeks, and I have felt extremely pleased that our friends have enabled me to keep so fully up with them as we have done. As far as grapes are concerned up to the present time we have, I might say, entirely exceeded my expectations and have, without doubt, put up the best display to be found here. From the many assurances that I have had, from those who have visited us from time to time, I have no doubt that we will be able to round up the season in a way eminently satisfactory to all concerned.

The attendance on the grounds, while not so large as was hoped for, still is running from 60,000 to 70,000 per day, and seems to be comprised of a class of people who are deeply interested in horticultural matters and who have given very close attention to the exhibits from the Province of Ontario. I have not the slightest doubt but that our exhibits here under different departments, Horticulture, Mines, Forestry and Ethnology will prove of lasting value to the Province at large.

Buffalo Sept. 26, 1901. W. H. BUNTING.



WINDOW GARDENING IN WINTER.

A WINDOW facing the south, or some intermediate point between an east or west aspect, as near due south as possible and exposed fully to the sun, is the best position to grow and flower window plants in during the winter. Partial success with some flowering plants can be attained in a less favorable position, and in one having a more northern aspect than those mentioned, but the results as a rule are not at all satisfactory. Light and sunshine are elements that cannot be dispensed with in plant culture, more especially if the best flowering properties of the plants are to be brought out. In growing or selecting plants therefore, that are to occupy the window in winter, care should be taken to select only those that are best suited for the position they are to occupy.

For a window having a north aspect it would be useless to think of growing and flowering successfully even the commonest window plants, such as geraniums, oxalis, callas, etc. Even bulbous rooted plants, such as hyacinths, daffodils, amaryllis and many other winter and early spring flowering plants are not a success in a window not fully, or at least partially exposed to the rays of the sun in winter. Much can how-

ever, be done toward brightening up even a north window by using bright-colored and graceful growing foliage plants. Amongst the latter may be mentioned palms, dracenas, *Cyperus alternifolia*, *Asparagus plumosus*, *aspidistra*, *Ficus elastica* and the variegated type of the cyperus, *Cyperus variegata*. *Begonia manicata aurea* makes an ideal window plant, and succeeds well in almost any window, whether in a shaded or sunny position, the beautifully blotched, ivory white and green coloring of its leaves giving it a decidedly bright and attractive appearance amongst a collection of window plants. The thick, fleshy nature of the leaves of this begonia also serve to increase its value as a window plant. The plain leaved type of this begonia, *B. manicata*, is also a fine window plant, but its foliage is less robust and is more sensitive to a low temperature, excessive moisture, etc., than the variegated type, the latter being the hardier of the two. *Begonia sanguinea* is also a good begonia for a shaded position in winter. The variegated anthericums and agaves can also be used very effectively in brightening up a group of window plants in a window having a north aspect.

The spotted *Farfugium* (Leopard plant),



FIG. 2162. RICHARDIA ALBA.

is also a good house and window plant, in fact, like the *Sanseveria Zeylandica* it seems to thrive in a window or dwelling house much better than in a greenhouse or conservatory. It is a well-known fact that better specimens of the two last named plants can be seen in cottage windows than can usually be found in the best equipped greenhouses or conservatories. Both of these are ideal plants for the house or window, whether in a sunny or shaded position. The *Farfugium*, however likes a liberal supply of water, whilst the *Sanseveria* should be given water very seldom, only once in every two or three weeks will suffice, unless the atmosphere of the room is very dry, when a more frequent application can be given it. The *Sel-*

aginella emeliana is also a pretty little dwarf growing plant for the window, succeeding best in a position not fully exposed to the sun.

The spotted calla (*Richardia alba*) will succeed well in a window where very little sunshine comes, its long arrow-like leaves, with numerous short stripes and spots of pure white on its otherwise deep green foliage, makes it a plant deserving of special notice for the window. Dry bulbs of this spotted calla secured now and planted in a 4 or 5 inch pot will make nice plants before spring. These, like the common calla or *Richardia Ethiopica*, do not like their roots to become dry when in a growing state.

Very few geraniums succeed in a window

facing the north, a plant or two of the dwarf growing silver variety *Madame Saleroy* being perhaps the only partial exception to this rule. For trailing and hanging plants *tradescantias*, *vincas*, and German ivy will be found effective for a north window.

For a window facing the south a much wider range of plants is open to select suitable varieties from. All of the varieties mentioned for windows having a north aspect will succeed in a window facing the south, to which may be added double and single flowering geraniums, fuchsias, begonias in variety, *B. incarnata*, *B. rubra*, *B. fuchsiaoides*, *B. semperflorens*, *B. gigantea rosea*, and *B. ingramma* being among the best for winter flowering varieties, whilst begonias *diadema*, *metallica*, *sanguinea*, *manicata* and *manicata aurea* will be found useful for the beauty of their foliage during the dark winter months. To this list can be added winter flowering bulbs of all kinds, not forgetting a few hanging pots of *oxalis lutea* (*Bermuda butterfly*). A plant or two of *epiphyllum* (*lobster cactus*) will also make a desirable addition to the collection. The variegated and flowering ivy leaved geraniums and the hybrid variety, *P. Crozy*, as well as many of the silver and gold tricolors as well as bronze foliated varieties will be found to succeed well in a sunny window in winter. The pretty little plant that may be fairly termed a window-shrub (*Linum trigynum*) is one of the most remunerative of winter flowering plants, producing its large bright yellow flowers in great profusion during winter and early spring. A pot or two each of primulas—more especially of *primula obconica*—*cyclamen*, *freesia*, with a pot or two of climbing asparagus, (*A. tenuissimus*), or of the perennial varieties of *tropeolums* or *smilax*, will complete a list from which a selection of plants can be made that will make a bright and attractive appearance during the winter, when all the recent beauty of out-

door plant life has been marred or destroyed by the keen biting frosts and winds of winter.

CARE OF WINDOW PLANTS IN WINTER—Watering window plants is one of the features of winter window gardening that requires great care and close observance of the requirements of the plants, so that they may not suffer from drought, or on the other hand—as is often the case—become stagnated and the soil made sour and consequently dangerous to the life of the plants from too much water being given them. Tapping the pots with the knuckles will in most cases be a sufficient guide to the inexperienced plant grower to ascertain whether it is necessary to give the plant water or not. If the pot emits a ringing or hollow sound when struck, give the plant a good watering, sufficient to moisten all the soil in the pot. If on the contrary there is only a dull heavy sound in response to the tapping, very little if any water is required. When plants require water at the roots, the soil on the top of the pot assumes a somewhat lighter appearance in color and feels dry and crumbles when touched. When this is the case it is safe to give the plants water. On the other hand if the soil is sticky and pasty when touched, in all probability no water is required. When water is required give it liberally so as to soak the soil to the bottom of the pot. Use tepid water if possible, at about a temperature of 45° to 50°, or just luke warm. Water the plants early in the day, and on fine warm days if possible.

INSECT PESTS.—There are four or five insect pests that are a source of annoyance and often of destruction to plant life, more especially to window or house plants, the usually dry atmosphere of the house presenting just the conditions suitable for the introduction and subsequent increase in numbers of most of these pests. Green fly or aphid, red spider, mealy bug and scale, are the principal enemies to plant life in windows in winter.

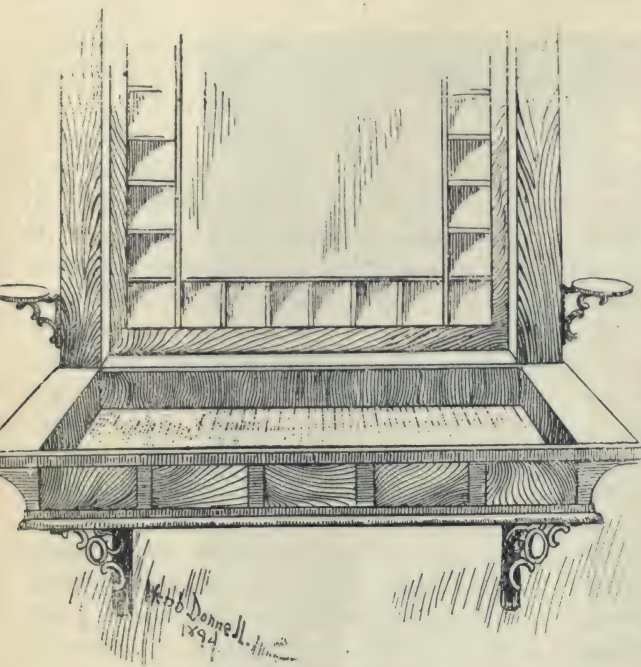


FIG. 2163. WINDOW BOX.

The mealy bug is easily seen and found by the white flowery or mealy appearance this insect presents when fully developed. Picking out the bugs with a small pointed piece of stick is about the best and safest method of keeping down these white, but objectionable and undesirable pests. The scale is not as easily detected as the mealy bug, as it is—except when quite young—scarcely discernible oftentimes from the bark of the plant from which it is slowly but surely sucking the life blood from. Its appearance when mature can perhaps be best described by terming it a miniature tortoise of very wee proportions, it being in most cases scarcely $\frac{3}{8}$ of an inch in measurement and almost oval in form. When near maturity the scale does very little harm to plants, but from the time that it is about the size of a small pin's head until it is near maturity is when it gets in its work of destruction. It is also at this period very hard to be seen on some plants, as it will if left unmolested entirely cover the bark of the plant on which

it is feeding, and is easily mistaken as being part of the bark of the plant itself. Roses, hydrangeas, fuchsias, ficus, dracenas and similar hardwooded plants are specially liable to scale. The best remedy is to wash off the scale with a weak solution of whale oil soap and water. It used to be a common saying amongst gardeners in my apprenticeship days that "to move the scale was to kill it," so that friction sufficient to move the scale is desirable, as well as the application of the solution mentioned. Ordinary soap suds, if not too strong, will answer just as well as whale oil soap and is safer to use. Both should be syringed or washed off the plants before it has time to dry on, as unless this is done the plants will look dirty and unpleasing in

appearance.

Keeping the atmosphere where the plants are growing as moist as possible, not allowing the temperature of the room to go beyond 70° or 75° at the most, will prevent the appearance to a great extent of both the other pests mentioned, viz.: green fly and red spider. Constant washings and syringing with clean water will materially assist to prevent the intrusion of these pests. All house and window plants, except a few, such as coleus, begonias—especially the Rex and rough-leaved varieties—should be syringed or sponged once every week or two, as neither of these insects mentioned appreciate the application of water to the foliage of plants. A very weak solution of whale oil soap applied once or twice during the winter will help to prevent attacks of these pests, but be sure not to use the solution too strong, or the remedy will prove more injurious to the plants than the insects. Weak tobacco water will kill and keep down the green fly or aphid. If these applica-

tions of water and insecticides as described are commenced with early in the season, and applied occasionally during the winter, it will prevent the appearance of these enemies to house and window plants. Too often the application of preventives and remedies is neglected until the plants are infested with insects, when severe measures have to be taken, and strong solutions used, that will perhaps kill the plant before it removes the pest. "An ounce of prevention is better than a pound of cure." This old adage certainly commends itself to plant lovers, who wish to have the plants in their windows looking bright and fresh during the cold dreary days of winter.

In conclusion I would say to those who take an interest in window gardening that they should at all times endeavor to make the surroundings of their plants in the house as nearly as possible similar to the natural

conditions and surroundings as found by the plants in their native haunts. If a little study and application is devoted to these important points and conditions of plant life, success will be sure to crown the efforts of those interested in the delightful and pleasing occupation of winter window gardening. If, on the other hand, no attempt is made to give the plants the surroundings they have when growing naturally, failure and disappointment will be sure to be the result. It is surprising how easy it is to succeed in window gardening, as many of our readers can testify, if plants are only given even a small modicum of natural treatment amidst the certainly unnatural and trying surroundings that plants in windows have usually to contend with during severe winters.

W. HUNT.

Hamilton.

WINTER FRUITS AND BERRIES.



NOTHER bright fruit is the high cranberry, *Viburnum oxycoccus*, a relative of the European snowball or guelder rose. It is a good shrub in foliage and flowers, and the berries are eatable, of a keen acid flavor. The black berries of the sloe, so-called, *Viburnum prunifolium*, are also conspicuous in winter. They are sweet, and with a little more pulp in proportion to their skins and seeds would be quite a successful fruit.

We must not forget the red hips of the sweet-brier rose, which are so highly polished that you can see yourself in them as you come near, and the evergreen habit of the bush for the first weeks of winter helps the effect.

The exotic barberry covers itself with the brightest red. Its fruit is eatable if one likes its keen sourness.

Here in the woods are knolls and mounds

—formed of the earth that has fallen from the roots of great trees upturned by prehistoric tempests—of all sizes and forms. The dry summits of many of them are covered with a thick mat of evergreen vines beautifully mingled with verdant ferns and mosses, the gray or green cups or the red caps of the *Cladonia* lichens, while even the stones are decorated—it is the partridge berry, squaw, or tea berry, *Mitchella repens*, with its scarlet berries. The last extremity of cold and mild sunny days, of bare and frostless earth, are all the same to this hardy plant. Its sweet and eatable fruits keep their form and tint until spring is nearly here, while the dark evergreen foliage enhances their effect. Each berry has borne two white tubular, fragrant flowers. Filled with down they came forth in midsummer under the heavy shade of forest foliage.—*Vick's Magazine for November.*

SOME ATTRACTIVE CACTI -I.



GREAT many people deprecate the entire cactus family because, they say, "they are such ugly-looking things." Many of these speak only from having seen a few specimens of those varieties commonly met with, such as some of the *Opuntias*, or prickly pear family; or *Echinopsis*, which goes by numerous names, from "policeman's club" to "devil's pin-cushion." Admitting that, when not in bloom, these varieties are not specially attractive, yet that is not enough to support the sweeping assertion that all cacti are ugly. First, taking the *Opuntia* class, we find some particularly attractive plants among them, and a bed, having a large variety of different members of the species grouped together, makes a splendid show. The variation in form is very great, from the slender, much-branched stem of *O. frutescens* to the large oval joints of *O. monacantha*. A few of the specially attractive *Opuntias* are the very slender-growing varieties, *O. frutescens*, *O. fulvispina* and *O. arolescens*. *O. fulvispina* grows rapidly, and the matured growth is covered with long, bright yellow spines, each of the spines having a sheath of the same color that can be drawn off quite easily. *O. vaganta*, *O. tessellata* and *O. tessellata* var *denudata*, have stems one grade larger than those first mentioned, and are also very pretty plants when well grown. A most beautiful and odd sort is a cristate form of *O. tessellata*, which grows in fan shaped branches of very many different styles. Among the larger cylindrical forms of *Opuntias*, there are many fine looking varieties. *O. Bicolor* has long variegated spines and sheaths, and makes a good contrast amongst others. *O. Fulgida* is a many branched plant with long white spines, and glistening white sheaths which show

well on the green branches, while *O. bernardino*, has long yellow sheathed spines to make still another shade in the collection. Some of the large round-jointed varieties are really beautiful, the palm being taken by *O. monacantha* variegata, whose joints are irregularly mottled with white, and the new growth is usually white with a pink shade. The different *Basilaris* classes are all fine, and show many shades of color. *A. basilaris* grows in cabbage form and the joints are purple; *O. basilaris cordata* has joints of a beautiful light green with a purple cast over it; *O. basilaris coerulescens* has fine blue colored joints and *O. basilaris alba flora* has a pea green color. These are only a very few of the most attractive *Opuntias*, and only their appearance as a plant not in bloom has been mentioned, but when covered with their splendid flowers, they are able to take their place amongst the best decorative plants. The flowers are of different colors, white, all shades of yellow, rose and crimson. Some of the yellow flowers have crimson centers and are very showy. The flowers of *O. lurida* or candle cactus are a fine crimson and as double as a rose.

When a collection of cacti is being made, most fanciers prefer the globular sorts, with the long, heavy, horn-like spines, that have so many fine variations of form and color. This is the *Echino-cactus* class, and it includes some real gems that do not need flowers to make them extremely ornamental. Perhaps the finest of all, and a very rare sort, is *E. grusoni* or Golden cactus, which is so completely covered with its bright, clear yellow, almost transparent spines, as to deserve the name Golden cactus. In Mr. McDowell's exhibit at the Pan-American there are a number of these in very large

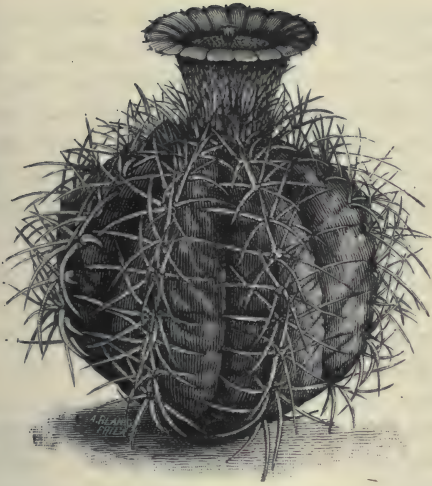


FIG. 2164. ECHINOCACTUS HORIZONTHALONIA.

specimens, which are held at long prices. Another that rivals the above is the Lizard cactus, or *E. cornigereus*. This gets its name from the large central spine, which is flat and curved sharply at the end, and so strong that they will support a weight of twenty pounds. There are two varieties of the Lizard cactus, the difference being in the color of the spines, which on one are deep purple, and on the other a clear yellow. The yellow spined sort is much the rarest. *E. cylindraceus*, bears very long curved spines (4 to 5 inches) that interlace over the plant and are of all shades from white to red and very stout. *E. dugens* always attracts attention, its gray color and rigid, pearl-gray spines, giving it an individuality in contrast with others. Another gray colored plant with nice even ridges and regular spines, that needs to be seen to be appreciated, is *E. horizonthalonius*. Another beauty that should not be passed over is *E. ornatus mirabelle*. The plant is a fine shape, with prominent, sharp-edged ribs; color is green, but it is so closely covered with little white woolly spots as to almost look white. The spines are yellow and very strong. This rivals in beauty the Golden cactus. A very rare and odd plant of this

family is *E. turbiniformis*, which is so wonderfully made that it looks as though laid out by a compass, and carved by a skilled mechanic from a round block of green stone. Still another *Echinocactus* of great merit is *E. wislizenii* or Fish-hook cactus. This grows to a large size, and its chief attraction is the stout central spines which are hooked like a veritable fish-hook, and sometimes four inches long. The above class is by many considered the handsomest of all cacti and the writer confesses to being of that opinion himself. The great difficulties encountered in procuring them, coming as most of them do from the interior of Mexico, where they have sometimes to be carried out on men's backs for days, over the mountains, makes the price usually high on most of them, and this prohibits their being more generally found in collections. The *Echinocereus* family does not contain so many attractive plants in regard to spines, but they make up for it in the profusion of their magnificent blooms. *E. candicans*



FIG. 2165. ECHINOEREUS.



FIG. 2166. CACTUS MAMILLARIA.

or Rainbow cactus, is indeed when in good condition quite pretty, with its alternate rings of different colored spines, giving it the appearance from which its name is derived. The three varieties of *E. engelmanni*, must be mentioned amongst the attractive cacti, as their long, heavy spines are beautifully variegated from white, yellow and all shades of red and purple to black. They are bound to attract attention when seen in a collection.

This article has gone too far already in speaking of attractive cacti, without mentioning that most wonderful plant of all, *Pilocereus senilis*, or Old Man cactus. This form of plant is the greatest curiosity in nature. The plant itself grows upright, of stout growth, and is covered with a remarkable coat of long, snow-white hair, which is trained down over the plant from what is apparently the crown of an old man's head at the top of the plant. The hair is quite soft, and is sometimes six inches long and so thick as to completely hide the body of the plant itself. There are quite a number of *Pilocereus*, but none of such distinctive attractiveness as the Old Man. Amongst the *Mamillarias* are some real little gems, that can be used with good effect in carpet

bedding, the spines of each variety being so distinct as to make fine contrasts. A few pretty ones are *M. lasiacantha*, which is covered with soft feathery spines so closely as to look like a ball of snow; *M. micromeris*, or Button cactus, a miniature plant covered with tiny rosettes of spines that are so soft as to have the resemblance of velvet to the touch; *M. sanguinea* is so closely covered with bristly red spines as to resemble a brush; *M. nickelsonii*, of very regular form; *M. waltone* and *M. nivea* with snow-white spines, and *M. pfeifferi* with clear yellow spines are also very pretty. The effect of carpet-bedding of cacti can be seen in a fine large bed in the grounds of the Pan-American Exposition, where several thousand cacti are grouped together in a splendid design. As there are between one and two thousand varieties of cacti known, it will be readily seen that only a very small number could be mentioned in an article like this. Some classes I have not even touched. The *Cereus*, which grow in all styles, from the slender *Cer. grandiflorus*, that climbs over a trellis, to the tall massive varieties, such as *Cer. peruvianus* and *Cer. giganteus*, the latter attaining enormous proportions.

The *Phyllocactus* family, which was treat-

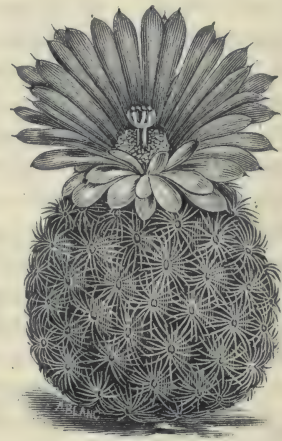


FIG. 2167. MAMILLARIA PECTINATE.

ed in a late number of the Horticulturist, and whose chief beauty consists in their wonderful flowers. The Euphorbias, which are of a fleshy, thorny growth in all colors and shapes, and which add greatly to a collection; and also the Aloes with their spotted leaves; the Gasterias and Haworthias

and all the other succulents. Then there is the Agave family or Century plants, of which there are a great many varieties, and many of which are quite attractive, but these and many others cannot be mentioned here, as this article is already too long.

Woodstock Ont. J. H. CALLANDER.

SPIRAEAS FOR PLANTING.

THE woody Spiraeas are among the most desirable shrubs for the lawn, the garden, or the hardy border of shrubbery. Their time of blooming extends over several months, beginning in the early spring and lasting through the summer. By a proper selection of species and varieties continuous bloom may be secured. They are easily cultivated, will grow in almost any soil, are perfectly hardy, and most of them are profuse bloomers.

There are many sorts differing in size, in foliage, in manner of growth and of bloom. The name spiraea was used by Theophrastus and is supposed to be from the Greek speiras, to wind, alluding to the fitness of the plants for forming its garlands, but many of the species now cultivated have a stiff, erect manner of growth.

The foliage of the spiraeas is exceedingly diversified and many species are named from peculiarities of the leaves, or from their resemblance to those of other plants. There is callosa, the callous-leaved; cana, the hoary-leaved; ceanothifolia, the ceanothus-leaved; ulmifolia, elm-leaved; prunifolia, the prunus or plum-leaved; salicifolia, the willow-leaved; sorbifolia, the sorbus-leaved; and many others too numerous to mention. In the color of the foliage there is also a great variety; some species have yellowish-green leaves; some bright, vivid green; apifolia var. aurean has golden-yellow tinted foliage, and

to some species the autumn brings bright tints which last a long time.

The manner of blooming is also much diversified. Some species have long, drooping sprays of leaf and bloom, two feet or more in length; in others the flowers in clusters thickly scattered over the bushes. Some bear tiny blossoms in stiff, upright spikes and panicles, others in flat corymbs, and still others in soft and feathery plumes. Some species have single flowers, others have blossoms as double as miniature roses.

In color the blossoms of the spiraeas are usually white, or pink of various shades deepening into rose, carmine and crimson.

Spiraeas sometimes require a year or two after planting to develop their characteristics, and they should not be condemned if they do not quite meet one's expectations the first time they bloom; the yellow foliaged varieties, especially, are much more satisfactory after becoming well-established.

The white-flowered species of spiraeas are particularly effective when planted among shrubs which bear bright-colored blossoms, or near dark-foliaged plants like the purple-leaved barberry. Planted in masses, with an eye to the best intermingling of colors and species they present a beautiful appearance, and they also make elegant low, ornamental hedges. Single specimens on the lawn or in the garden, with plenty of room for development make a magnificent showing in a few

years, particularly species with long, willowy branches so heavy that when in bloom that they sweep the ground.

For cutting the spiraeas are eminently desirable; a few graceful sprays in bouquets of bright-colored flowers soften and harmonize the whole, adding the exquisiteness and delicacy to the general effect, and the long, graceful flower-wreathed branches of the drooping sorts are effective for decorating.

The spring flowering species of spiraeas have an opulence of bloom that makes the bushes a mass of white, like drifts of snow. As a whole, white-flowered, early-blooming species are ones most admired and most generally planted, but many of the summer-blooming kinds are valuable as furnishing variety and color in the hardy border, and because they successfully withstand the heat and drouth.

A large collection of spiraeas would necessitate extensive grounds, but a dozen species would give variety and afford continuous bloom, and half a dozen choice ones would make a very good assortment. If you have only room for one, two, or three, it may

be hard to make a selection, but you can scarcely fail to obtain some satisfactory kinds, for all are beautiful, desirable and highly ornamental.

One feature which makes the spiraeas particularly desirable for general planting is the moderate price at which they can be procured. Many a one whose taste is not at all proportioned to the length of her purse looks with longing, if not with envy, at the beautiful shrubs which adorn the grounds of her more wealthy neighbor, knowing that she cannot even hope to have similar ones, but spiraeas are not at all expensive. The price varies from fifteen to fifty cents, some of the most beautiful species being obtainable at the minimum price.

In the fall, after the year's growth has been hardened by light frosts and the leaves have fallen, is the best time for transplanting spiraeas. New plants may be propagated, if desired, by making cuttings of soft wood during the summer, rooting them in sand, or by separating from the main plant some of the numerous shoots which spring from the root.—*Vick's Magazine*.

A LOVE AFFAIR IN THE GARDEN.

With whom did he fall in love? Rose Geranium.
 Was she handsome? An American Beauty.
 Did she have many admirers? Phlox.
 What was his name? Basil.
 How did he propose? Aster.
 What time of day was their first meeting? Morning Glory.
 What was the color of her eyes? Violet.
 What was the color of her cheeks? Pink.
 What did he wear upon his hands? Fox Gloves.
 What fastened his coat? Bachelors' buttons.
 What had she upon her feet? Lady slippers.
 Her parents were worldly and what had she been told to do? Marigold.
 What did her lover offer her? Tulips.
 What was the result? Love in a Tangle.
 Faithful to her parents' commands, what did she say? Touch me not.
 What did he say, pleading with her? Honeydew.
 What did she hope would efface their love? Thyme.

He fell down upon his knees before her and what did she say to him? Johnny jump up.
 What did he do? Rose.
 What did they both have when they parted? Bleeding hearts.
 What did he think of adopting? Monkshoods.
 What did she think of becoming? Veiled nun.
 When, after many months the parents relented, what did the lovers find? Sweet peas.
 What hour was set for the wedding? Four o'clock.
 Who were her bridesmaids? Violet, Lily, Marguerite and Daisy.
 Who was the best man? Sweet William.
 What did the mother say to the bride? Forget-me-not.
 Where did they make their home? Cape Jessamine.
 What did they find in married life? Heartsease.
 —Designer.

OUR VILLAGE IMPROVEMENT SOCIETY.

BY EBEN E. REXFORD. *

A HINT FOR OUR HORTICULTURAL SOCIETIES.



OUR village is pleasantly located. It has river frontage and some very fine trees and quite a number of attractive residences.

It also has a two-acre lot which had long been known as "the park," because it was public property. It was bought years ago, when the town had a "boom," as a site for a court house. But a rival town got the court house, the boom collapsed and our "park" became village cow pasture.

Its fine elms made it a shady, pleasant place, and many of us saw great possibilities in it, if as we used to say to each other, "the town ever improved any." But, like the rest of the village, as a village, the two-acre lot was neglected, we took no pride in it, and the question of cutting it up for residence purposes finally came before the village Council.

It was this suggestion on the part of some members of the Council which gave birth to our Village Improvement Society, for, when the matter came up for serious consideration, one Councilman opposed the measure vigorously. In conversation with his friends, outside the Council room, he had some severe things to say about our lack of public spirit, which he asserted had resulted in the general air of "gone-to-seedness" which characterized the place.

"Why," said he, "we might have one of the most charming little villages in this part of the country if we had more pride and interest in it. But we don't seem to have any. Every season I hear people from the city remarking about our shiftlessness and neglect of the place. 'It might be made delightful, if —.' And that 'if' of theirs is equal to a volume in its unspoken criticism on our

lack of enterprise and improvement. In my opinion, it would be a shame to sell off the park. We may not need it now, but if we ever wake up and do something we'll see the mistake we made, but we'll find it out when it's too late to help matters, for there's no chance to get another piece of land like it. I wish I could stir up some enthusiasm among the people, and get them to go in for a reform all along the line. I read of Village Improvement Societies in other places. One would be a good thing for us, I think."

"Why not have one then?" suggested one of the group.

"Why not, indeed?" said another. "I'd be glad to join such a society and do what I could to help it along, and I think the rest of our neighbors would. We all see the need of improvement."

So it came about that in less than an hour the village improvement idea was enthusiastically received. It seemed as if it was just what everybody had been waiting for. A public meeting was decided on, and a notice was posted up, asking all who were interested in the improvement of the village to meet at one of the churches on Wednesday evening.

Wednesday evening came, and the church was filled with men and women. The man who had objected to selling off the park was made chairman of the meeting, and he briefly stated its object to the audience. Then two or three of the leading citizens spoke heartily in favor of the project, and an informal discussion ensued. The result was that we had no difficulty in effecting an organization, and our Village Improvement Society came into existence with a membership of over fifty.

In discussing the method of management we decided to have everything about it as simple as possible, for some of us recognized the fact that success in undertakings of this nature is largely dependent on simplicity and directness. In order to avoid friction and "running expenses," it is wise to have but little machinery in a society of this kind, and that of the simplest character consistent with effectiveness. We dispensed with a formal and elaborate "constitution" and "code of by-laws," for we did not think either was needed. We simply drew up a paper setting forth the object of the society and the few rules we thought necessary to formulate for its operation, and when we had subscribed our names to it we were full-fledged, active members.

In this paper it was stated that membership was conditional on an agreement on our part to devote at least one day's work, spring and fall, to the improvement of home grounds, and to give one day's work, spring and fall, to the improvement of public grounds and vacant places belonging to non-residents, if called on to do so.

Each member pledged himself to the payment of one dollar semi-annually, the money thus secured to constitute a general fund to be drawn on in meeting the expenses attendant on the improvement of public places. We had but three officers, a president, secretary and treasurer. It was understood that the president was to have supervision of all work on public places, with the power of appointing such committees as might be deemed necessary whenever they were needed.

At first we had not proposed to take women into membership, but it was suggested that they had as much right in the society as men had, and would, no doubt, take as much interest in it,—and quite likely a good deal more. Accordingly, it was unanimously voted to admit them.

Let me say right here, for the benefit of

those who may decide on having an Improvement Society, that in my opinion it will not be what it ought to be unless it admits women to membership. Let this be honorary membership, if thought best,—by that I mean exemption from the payment of dues and the performance of manual labor—but by all means let women come into the society. Their opinions will be found valuable and helpful, and they will do much by their enthusiasm to encourage good work.

As was stated in the paper to which we subscribed our names, the work of improvement was to begin at home. We began it at once. It was surprising to note what a change was made in the general appearance of the place by one day's work about home. It seemed incredible that so much could be accomplished in so short a time. We began to realize, then, as never before, the importance of concerted action.

Our first day's work was a valuable object lesson to us. But many of our members were not satisfied with one day's work. They felt that entire satisfaction could only come from thoroughness, and accordingly they kept at it until everything about their places was in apple pie order. Their efforts proved contagious. Those who were not members of the society caught the enthusiasm of improvement, and the good work went forward on every hand. It lasted long enough to enable us to accomplish really remarkable results—not remarkable, perhaps, when individually considered, but quite so when looked at in the aggregate. Old lawns were renovated and new ones were made; trees, shrubs and vines were planted and beds planned for flowers; old fences were mended and painted, some were removed; we cleaned away the rubbish which had accumulated everywhere because of the careless, slovenly habits we had fallen into;—in short, we did a hundred and one things which I need not make special mention of here, but which each member of a society

for general improvement will find waiting to be done when an aggressive campaign is begun. In going about the village shortly after the era of reform had set in we were delighted at the evidence of neatness which met us on every hand, and we congratulated ourselves on what had already been effected by combined effort expended along the same line.

We began public improvement at the church. The grounds about it were cleaned up thoroughly, and some trees and vines set out; old hitching posts were removed and neat new ones provided; the sheds at the rear were reboarded and painted a quiet, neutral color. Then we went to work on the school grounds, and we did not leave them until they were as tidy in appearance as the grounds about our homes were. We set out a good many trees there, some of them evergreens, made provision for beds to be filled with flowers by the children, and arranged trellises of lathwork, to be covered with vines, as screens for the outbuildings.

Then "the park" was taken in hand. Thistles, mulleins, nettles, and other weeds of an aggressive character had taken full possession, and the cows which had been allowed to feed there had not interfered with them. These we cleared away and sowed the places where they had grown with lawn grass seed. We built seats here and there under the trees and erected a rustic band stand in the centre of the lot, about which we planted ampelopsis and bittersweet and wild clematis. These vines have since grown to such size that they completely hide the wood of which the stand is built, and make it really "a thing of beauty" in summer. In some of the open places we set out native plants—golden rods and asters. In others we planted perennial phlox, hollyhocks and clumps of "golden-glow" rudbeckia. Here and there, where they would show to good advantage, we made groups of hydrangeas and wild roses and the white-

flowered elder of the roadsides and fence corners. In this way we secured considerable variety without the expenditure of a dollar, as all the cultivated plants we used were given us by those who had more than they had use for, and the native plants were to be had for the taking in the fields and pastures. The result of our work here was most gratifying. When we got through with "the park" it was something we were all proud of. We speak of it nowadays in a respectful and appreciative way, and we are justified in the pride we take in it, for it is a park that would be a credit to any village.

Every pleasant evening in summer the young people congregate in it, and once or twice a week the band practices there, and we all turn out to listen to it and visit with our neighbors and congratulate ourselves on the new order of things. It is natural that we should feel a sort of partnership pride in what we have done, because it has been the outgrowth of co-operation.

Each summer affords us fresh proof of the wisdom of our undertaking. Visitors from the city compliment us on the spirit of progress visible on every hand. "It doesn't look like the same place," they tell us. "You have made a model village of it, so far as outside appearances go. Your sidewalks put our city pavements to shame because of their trustworthiness. Your homes show thrift. Your public places are kept in as tidy a condition as your homes are, and that's something that can't be said of many villages. We like it here, and we're coming again." And they kept their word, and our village is becoming quite a summer resort. So we have found that what we have done with very little inconvenience to ourselves has proved a good advertisement for the place and its people, and the present prospect is that we shall get back many times the value of the labor and money expended in improvement, for several sales of property

have been made at much better figures than prevailed before we began our work. The increase in the value of real estate is directly attributable to the improvements which have been made by our society.

What we have done others may do. We have proved to our satisfaction that a large amount of money is not needed in an undertaking of this kind. Organized effort is the important thing. Of course some money will be needed, but the sums coming in from dues will generally be found sufficient to meet all demands, unless improvements far more elaborate than ours are undertaken. If more is needed, it will be forthcoming, I am confident, for everyone will feel a personal interest and responsibility in the accomplishment of what has been undertaken, and they will not be willing to let failure result from lack of means to carry it forward to satisfactory completion.

In almost any village the young people could be enlisted in the work, and they could give entertainments for the benefit of the society and thus realize a good sum, since everybody would feel in duty bound to patronize them.

We have not been ambitious to make

costly experiments. Instead, we have been satisfied to make the most of possibilities in a practical way. We have let competent men, having good taste and good judgment, plan the public work for us, and we have been sensible enough not to interfere with them or hamper them with unwise and uncalled for suggestions which we have insisted on having adopted. Wherever and whenever this is done there will be friction. We have performed the work assigned us by those whom we have chosen to take the lead in an honest, hearty fashion, glad to do it, because we felt that it was of general as well as personal benefit. It has stimulated and strengthened our pride in the place we live in. It has made us feel, as never before, the mutuality of our interests.

But we are not so satisfied with what we have done that we feel content to fold our hands and rest on our laurels. We have other improvements in view. Our society seems to have become a permanent thing. One improvement naturally leads to another, and the work of a live Village Improvement Society like ours is a process of general evolution which may go on indefinitely.—*Vick's Monthly.*

PROPER LOCATIONS FOR LILAC BUSHES.—The suckering character of common lilacs should be borne in mind when deciding on their location. A slender, neat little plant this year will be a large clump five years hence, with a diameter at the base of perhaps four feet, and with abundant capabilities of future increase.

Lilacs make effective screens—and especially in hedge form. Outbuildings are rendered more sightly by their use, while, at

the same time, the wealth of bloom furnishes additional beauty to the scene and the very best kind of cut flowers for house decorations. This cutting of the flowers, by the way, likewise acts as a desirable pruning.

The "improved" named varieties of lilacs are frequently grafted on privet roots, in which case suckering does not occur unless roots are finally sent out above the graft.—*Meehan's Monthly.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

APPLE PACKING will be exemplified at our Cobourg meeting by some of the Brighton apple packers.

MR. C. C. JAMES, Deputy Minister of Agriculture, has kindly promised to give an address at our Annual Meeting at Cobourg.

"ROSE GROWING BY AMATEURS" will be introduced for discussion at our Cobourg meeting by Mr. J. G. Jackson, gardener at Port Hope.

THE CANADIAN HORTICULTURAL ASSOCIATION met in the city hall, London, on the 5th of August. Delegates were present from Montreal, Kingston, Toronto, Hamilton, Stratford, Chatham and other places.

THE ANNUAL MEETING at Cobourg has been fixed for Wednesday, Thursday and Friday, the 18th, 19th and 20th of Decem-

ber. We are securing excellent talent, and expect to have a live program. Members of the association everywhere, are invited to send in suggestions for our program.

THE FIRST CAR LOAD OF BARTLETT PEARS left Grimsby on September 9th, 1901, consisting of 1,120 cases, and the second on September 16th, containing about 600.

HORTICULTURAL SOCIETIES are invited each to send a delegate to represent their society at our Annual Meeting, and Mr. Creelman proposes that we give one session to the discussion of subjects of especial interest to the societies.

THE BARRY MEDAL has been awarded by the Western New York Horticultural Society to C. C. Hooper, Rochester, for his new red currant "Perfection," a cross between Fay and White Grape. It is said to combine the

mild rich flavor of the latter with the size and appearance of the former, with larger bunches and more of them than the Fay. This medal is offered for a new fruit, ornamental shrub, tree, flowering plant or vegetable which, after three years' test, shall be considered worthy.

MR. H. E. VAN DEMAN, the most expert pomologist in the United States, is to be with us at our Annual Meeting in Cobourg next December. He is late U.S. pomologist, and now employed as expert judge in fruit at the Pan-American.

GROFF'S HYBRID GLADIOLI certainly make a magnificent showing at the Pan-American Exposition, and deserves special notice. For fifteen years Mr. Groff has made the hybridization of these flowers a special study and offers thousands of new and distinct types to his patrons under the general name of Groff's hybrids. He has on exhibition continually about 10,000 spikes of bloom, the product of 150,000 bulbs set especially for this purpose.

BEST GRAFTING WAX.—One pound tallow or raw linseed oil, two pounds beeswax, four pounds rosin. Slowly melt all together, stir well and when partially cooled pour into pans which have been moistened or oiled to keep the wax from clinging too tightly to them. When thoroughly cold break into convenient pieces.

For use it should be melted and applied carefully over all exposed cuts and open cracks around the grafts. A small paint brush is the most convenient for this purpose. It can be applied safely much warmer than can be borne by the hand, but care

should be used not to have it very closely approaching the boiling point of water.—*L. Burbank.*

WILDER MEDALS FOR ONTARIO.—At the Biennial Convention of the American Pomological Society a few silver and bronze medals are conferred upon meritorious exhibits, in memory of that eminent horticulturist, the late M. P. Wilder. Acting under instruction from the Department of Agriculture, we forwarded our fruit experiment station exhibit from the Industrial to Buffalo where this convention was to meet, and we are gratified that it has been awarded a silver medal. It was certainly a most interesting collection, containing about 150 varieties of apples, besides grapes, pears and plums.

In addition to this a silver medal was conferred upon M. Pettit, Winona, our experimenter in grapes, for his excellent collection of varieties; a silver medal upon Albert Pay, St. Catharines, for his collection of fruit, and a bronze medal upon Mr. Orr, President of the Ontario Fruit Growers' Association, for his excellent exhibit.

PEACH CULTURE is a specialty with Mr. R. Morill, of Michigan. He applies annually to his trees 100 lbs. wood ashes per acre and 400 lbs. of bone meal. He plows the ground about 2½ inches deep, just after blooming season, and then cultivates continually, going over his whole orchard of one hundred acres every day. He does not try to cultivate close to the trees, but thinks that by cultivating the middle of the rows each way he gets the result aimed at, viz., the retention of the moisture. This is what he calls "horse leg irrigation."

QUESTION DRAWER.

Seedling Plum.

1246. SIR,—To day I send you a sample of a seedling plum, first time of bearing. They have been picked several days (they grow on my farm near Belmont), they should have remained on the tree awhile longer; I like them cooked. The tree is a rapid grower, and stands strong and erect. What is your opinion of it? I am thinking of starting a fruit growing association here. Could we affiliate with the O. F. G. A.? Kindly give me particulars so we can start right.

Yours, etc., S. T. PETTIT, Aylmer.

The plum has excellent quality, but it is too small, and, too lacking in color to be profitable.

You can start a local horticultural society at Aylmer, and devote your attention to both fruits and flowers. Such a society would be allowed a Government grant, and would be allowed to affiliate with us. Better correspond with Mr. Thos. Beall, Lindsay, our organising director.

Langstroth's Seedling Crab.

1247. SIR,—By this mail I send to you a specimen crab apple grown on a seedling by myself; this is the first year it has fruited. There was only four crabs on, they were all in one cluster. Kindly give your opinion of it in Horticulturist at an early date. Note the blossom end, as it is just as picked; it is perfectly clean.

ISAAC LANGSTROTH, Seaforth.

This is certainly a very interesting little seedling of a waxen yellow color, with a tint of red, and without a calyx. The flesh is tender, very mild acid, and rather pleasant flavor. About the size of Montreal Beauty.

New Peach.

1248. SIR,—I send you under another cover a peach which was grown here in our village, the most northerly part of the County of Waterloo. Not being able to name same, or any one else I could find, and being desirous of knowing the name, kindly let me know it.

R. JACKSON, Elmira.

Sample came to hand September 10th in condition for eating; form round, with apex prominent, $2\frac{1}{2}$ inches in diameter, green

with red cheek; flesh white, tender, juicy, free from stone, flavor excellent; fine dessert peach.

So far as we know this peach is not one of our named varieties.

Apple Inspection.

1249. SIR,—Being a constant reader of your paper, I would like to know if it is imperative to have all apples inspected before they leave Montreal. I have been shipping apples to England for the last 16 years with good results and I am satisfied if my apples have justice done to them on the steamship there is no need of inspection. I think the government should see after the apples, how they are loaded on board the steamship; that would be more to the interest of the shipper than it is to inspect the barrels for if the apples are ever so good and are cooked on the steamship they are done for. I am yours,

Mount Brydges.

T. R. VEALE.

No, it is not necessary to have the apples inspected, and probably not one barrel in five hundred will be actually inspected, but all are subject to inspection, and the inspector has the privilege of opening as many as he pleases.

Thrip on Virginia Creeper.

1250. SIR,—Will you kindly give me some advice upon what to do with my Virginia Creeper. I enclose you a leaf. Those little insects you see on the back of the leaf; mature into a little white and brown winged fly which rise from the vines like a mist when you touch it. I have noticed nearly all the vines in East Toronto are affected the same way.

I have searched through all the Horticulturists, but can find nothing touching upon this matter.

Your valuable advice would greatly oblige.

MRS. H. C. MOORE.

This hopper is often very troublesome and difficult to destroy. Three years ago it was very bad on our Virginia Creeper at Maplehurst, and the only remedy we tried was an exceedingly fine spray of petroleum. This was fairly effective, but had to be used with extreme care. We applied it with a tin atomizer, which can be purchased for about \$1.

Plum for Name.

1251. SIR,—Enclosed you will find a branch of plums, and I would like you to give them a name if you can, we have nothing like it here. I grafted a very large plum, but do not know the name, into a shoot from a Moores' Arctic plum, since dead. This is the first year it has borne any, and it is loaded, and the prettiest one ever I saw
St. Thomas, Ont. B. DIXON.

This plum considerably resembles Glass Seedling.

Borer in Spruce Trees.

1252. SIR,—A Buffalo friend of mine, who has a summer home at Ridgeway, very much fears that he is going to lose some handsome spruce trees, by the ravages of a black insect, about an inch long, much resembling a beetle. The creature bores into the tree, making a deep hole, as clean cut as though with an auger; the hole measures about one-sixteenth of an inch in diameter. It is obvious that his trees are failing. Can you tell me what this insect is and how to eradicate it, or what to do to preserve the Spruce? A reply at your earliest convenience will be greatly valued.

E. P. BLACHFORD & Co., Toronto.

It is somewhat difficult to identify the borer which is destroying the Spruce trees at Ridgeway, without seeing the trees, or specimens of the insect.

However, from the description of the hole, I will at least make a venture and say that it is the work of the Longicorn Borer (*Monohammus confusus*), but the color of this insect is not black as you say the insect in question is. This insect bores a deep hole quite round and regular into the wood of sound trees. Frequently the hole made by the emerging beetle is one-half an inch in diameter. The adult insect is grayish brown in color, a little over an inch and a quarter in length, and has very long antennae, by means of which it may be readily recognized.

I know of no practical remedy against

these insects. Usually the trees which are beginning to decay are most liable to attack, so that possibly in this case it would be unwise to spend time in treating the trees, even if practicable measures could be devised.

Will you kindly send me specimens of the borer. Very truly yours,

O. A. C., Guelph. W. LOCHHEAD.

Canadian Apples Wanted.

1253. DEAR SIR,—A friend of mine, Mr. Ralph Richardson, Probate Registrar, of 10 Maydale Terrace, Edinburgh, Scotland, has written me thrice in reference to our Canadian apple, which he had seen in the Glasgow Exhibition, and he asks me why the finest Canadian varieties are not sent to the Scottish market. He says he ate a capital Canadian apple at the Glasgow Exhibition in July while no such apples had been for sale for months, though the cold storage system should enable us to send them to Scotland all the year round.

Our mutual friend, Professor Baker, suggested to me that I should write you as a person who took great interest in the matter. If you will kindly answer Mr. Richardson's enquiries I shall forward your letter to him. Yours truly,

GEORGE R. R. COCKBURN, Toronto, Ont.

The possibilities of cold storage were not realized before, but have been well proved by the storage of those magnificent apples for the Glasgow Exhibition. We forwarded them in November to Montreal, where they were held until the following May, and then forwarded to Glasgow to be brought on the tables from time to time. The result proves what can be done, and we would take advantage of the opportunity at once were it not for the apple failure of this season. Another season no doubt such apples will be placed on the Glasgow market in July.

Open Letters.**Gooseberry Notes 1901.**

SIR,—I have to report another season's fight with mildew upon the gooseberry with only partial success. The early part of the season was not favorable for spraying, we had so many showers. The first two sprayings were made before the leaves

came out, with blue stone water, two pounds to twenty-five gallons of water. Afterwards liver of sulphur was used, one ounce to two gallons of water. Sprayings were made after every shower. The Imperial nozzle was used, which throws the finest spray, and by holding the nozzle and direct-

ing the spray upwards as well as from above and laterally all parts of the bush was reached.

Our bushes were pruned severely last fall but in addition to this all suckers and over half of the new wood has been cut away this spring. This was done to let in the air.

Mildew made its appearance on the 6th of June upon the fruit. The foliage has been but little affected during the season and went ahead rapidly for six days by which time half the fruit was affected.

I am satisfied that the persistent spraying not only checked the spread of the disease at this time but killed that upon the berries as their growth was not checked. The pure English varieties again were less affected than the seedlings, this may be owing to the smallness of the seedlings Chautauqua, Queen, Crosby's seedling, Golden Prolific, and Large Golden Prolific suffered most. For vigor and productiveness nothing approaches Whitesmith and Autocrat though Whitesmith is the better fruit. Ontario promises well and Columbian and Dominion are vigorous.

The American varieties, Red Jacket, Pearl, Downing, Champion and Smith's Improved were not sprayed and gave a large crop of clean fruit.

Now to sum up. the foreign gooseberry is superior to the American varieties in size and in size only, and Red Jacket is large enough for all practical purposes when preserved ripe, as they should be, for there is no more reason in canning the gooseberry green than there would be in doing the plum or cherry in the same condition. The thick skin of the large berry are against them. Again the big berry is sweet, in some cases inspired while Red Jacket has a fruity acid taste peculiarly pleasant. We can or rather preserve the Red Jacket for our own use and no other. No berry compares with Red Jacket in appearance when picked just as they are turning to ripen. At this stage they are a pinkish transparent color, very beautiful. To sum up, this variety is the most vigorous, hardy, prolific, beautiful thin skined variety on our grounds. In size it is well up to Whitesmith when equally loaded with fruit.

If I were planting extensively I should certainly set Red Jacket for main crop and Champion for picking green for sauce, etc., at a season where there is a dearth of material for this purpose. Champion is full grown two weeks before any other variety except Smith's Improved and it is too uncertain a cropper. If a foreign is desired then Whitesmith is more vigorous—my bushes of this variety are as large as Downings—and more prolific than any other foreign variety tested here except Autocrat.

I am certain that when the Red Jacket is fully tested and compared with others it will take first

place as a cooking berry but will also put the gooseberry where it rightfully belongs, at the head of preserving fruits especially for the poor man. I say the man with limited means because there is less waste in this fruit than almost any other and it can be grown cheaper. Our Red Jackets this year gave $7\frac{1}{2}$ quarts to the bush all around. To those who prefer a sweet fruit then the Downing or Pearl fills the tree.

As far as profit is concerned even supposing spraying will control mildews, and it will not, when the cost of spraying, material and labor is counted, it will pay better to grow Red Jacket and Champion at 6 cents than the foreign at 10 cents. Green Chisel still maintains the first place as a pure English variety.

Nanty.

STANLEY SPILLETT.

Tomatoes on the Channel Islands.

SIR,—Enclosed find a slip I cut from the Southern Times, published at Weymouth (my home 45 years ago). I thought it might be of interest to some of our readers to know the amount of tomatoes now grown on the Channel Islands.

When I left Weymouth in 1856, tomatoes were then an almost unknown luxury, but it is very evident that they are now largely grown, and must ripen much earlier there, than with us.*

Yours truly, CHAS. JAS. FOX.

THE FRUIT TRAINS.—One of the sights of the Great Western line this summer has been the passing of the fruit trains from Weymouth. With an engine at the front going at topmost speed, and another pushing at the rear to help it along, the trains go through the small stations at a terrific rate, highly suggestive of the importance of the business on which they are bent. To the growers of the luscious products it is the essence of the trade that the fruit should be got to its destination within a few hours of its being picked, and the railways are not slow in providing the prosperous growers of the Channel Islands all the facilities they need. That they are doing well there is no reason to doubt, which perhaps is more than can be said of the people who rely on the pleasure traffic. The official returns show that so far this season over half a million packages of fruits, vegetables and flowers were despatched, and a large proportion of them were shipped by the Weymouth route. Tomatoes are grown on an enormous scale, and it is stated the output this year was over a quarter of a million baskets, averaging fifteen pounds each. What this means to the Great Western anyone who pays a visit to the landing stage on a busy afternoon can see.



Our Affiliated Societies.

WOODSTOCK.—The once hospitable doors of old Knox church were thrown open last night for the first time since the old church was deserted by its congregation for their new building. The days of the old church are numbered, and in a short time it will be torn to the ground, but even in its palmiest days it seldom presented a brighter appearance than it did last night. If Knox were an Irish church anyone might have supposed on seeing the lights and the flowers and hearing the music that "Sure, it must be a wake, plaze yer honor," being held in honor of the passing away of the old church, but as Knox is not Irish, a more prosaic explanation must be found in the fact that the Horticultural Society had rented the building to hold their annual exhibition of flowers and fruit.

The society were very happy in their choice of a building, as the church lends itself well to purposes of decoration. The exhibit this year was also an exceptionally fine one, and a great deal of artistic taste has been displayed in the arrangement of the great variety of plants and flowers. The galleries were draped in red, white and blue bunting, which formed a very effective background for the green foliage of the plants. The draping, by the way, was done by Mr. Smith, of John White & Co. Between the posts of the gallery hanging baskets were suspended and Chinese lanterns.

The centre of the building was occupied by a large rectangular bed, composed of palms, foliage plants, geraniums, etc., and banked with ferns. Two large banana palms belonging to Mr. J. S. Scarff, and a handsome palm, the property of Mrs. J. J. Hall—the latter is for sale—were the most notable features of this bed.

The pulpit was elaborately decorated, and, if there are sermons in flowers as well as stones, many eloquent sermons must have been preached last night. A very handsome rubber plant, the property of Mr. W. H. Van Ingen, occupied the centre of the reading desk; baskets of asparagus spengari, belonging to Mr. Hoar and Mr. Thos. Douglas, Brock street, were placed at the sides and in front, while clusters of golden rod and sun-flowers gave the needed touch of color.

A long table placed across the front was devoted to cut flowers, as were also two tables at the back of the building. Along the sides stands were arranged on which were displayed the different exhibits.

CUT FLOWERS.

The display of cut flowers was a very fine one. Conspicuous amongst these were the large bouquets of geraniums, salvias and petunias that were brought from the garden at the Central school. There were also some fine specimens of asters, gladioli, zinnias and other seasonable flowers.

There was not a very large display of fruit, but it was of a very fine quality. Mr. John McLean had an assortment of plums and pears a number of baskets of which were offered for sale and disposed of before the evening was over. Mr. Jas. Canfield showed pears, plums and peaches; Mrs.

H. J. Finkle, grapes and plums; Mr. J. S. Scarff, grapes.

Doyle & Son have a splendid display of plants of different varieties. Their ferns are exceptionally fine. A great many beautiful specimens of the Boston and maidenhair fern were shown. In fact, one large stand was devoted solely to these varieties. Another large stand was occupied by palms, begonias and geraniums. This exhibit is worthy of special attention from all horticultural enthusiasts.

Amongst the private collections Mr. Jas. Scarff showed the greatest number of plants. Nearly the whole south side of the building was occupied by his exhibit. Mr. Scarff has devoted most of his energy to begonias, and had a great variety of fancy-leaved, tuberous rooted and rex begonias. He also showed some fine foliage plants.

Mrs. George McPherson's exhibit was a beautiful one, and included a great variety of different plants, probably more variety than any other exhibit. Besides a lot of cut flowers, she showed a fine specimen of the day lily in full bloom, palms of several different kinds, begonias, a century plant and cacti. All looked in the pink of condition, and showed signs of care from a practiced hand.

Mrs. John Pascoe showed two fine specimens of begonias in full bloom and with fine foliage.

Mrs. Hoar supplied a number of hanging baskets, one of asparagus spengari deserves special mention, and also two large stone vases of trailing nasturtiums.

Mr. D. C. Richmond exhibited hanging baskets and two large pots of varied flowers.

A window box belonging to Mrs. H. J. Finkle excited a great deal of admiring comment. It is ten or twelve feet in length and is filled with a great variety of plants, cordylina, foliage plants, geraniums, petunias, etc., forming one of the handsomest window boxes to be found in the city.

Mr. C. R. Reid's collection of cacti was an interesting study. He possesses a great many varieties of these freak plants and not satisfied with nature he has brought art to bear upon them and has grafted different varieties of cacti on to each other. One plant has specimens of six different varieties grafted on to its stem, forming a curiosity that it would be difficult for a botanist to name.

Thomas Douglas, Brock street, had an exhibit of great variety. He showed a *companula persicaefolia* in full bloom and of great beauty, the only plant of that variety shown. It is placed in a conspicuous position in front of the pulpit and should not be missed by anyone. Mr. Douglas also shows a magnificent sweet-scented geranium, an asparagus fern of exceptional beauty, and a basket of asparagus spengari.

The pleasure of looking at the flowers was very much enhanced by the excellent impromptu concert that was given during the evening. A pianauto, operated by Mr. D. W. Karn, gave a great variety and number of selections and the following well known vocalists rendered solos in

their accustomed excellent style: Mrs. Knight, Misses McLeod and Dignam, Dr. Brown and Mr. Charles Hamlyn.

When the audience grew weary of walking around and looking at the exhibits they could retire to the gallery and rest, and be served with ice cream, if desired, from an ice cream stand presided over by the Misses Parker.

This afternoon is children's day at the show and the successful candidates in the public school competition will be awarded prizes. In the evening the successful candidates from the Collegiate Institute will receive their prizes. The presentations will be made by the mayor of the city and other leading men. An excellent musical program will also be given in which Misses Powell and Farrell and Messrs. R. J. McAlpine, Sykes and Dugit will take part. The pianoto will be a feature of the evening's entertainment.

Thursday afternoon was children's day at the Horticultural Exhibition, and a most enjoyable time was spent. The schools were dismissed a little earlier than usual, and a great many of the children visited the exhibition. The great feature of the afternoon was the presentation of the prizes received by the school children in the competition for the best gardens. Mr. Angus Rose and Mr. James Hoare were the judges in the competition, and the society is very much indebted to them for the painstaking and conscientious manner in which they performed their task.

The prizes were presented by Messrs. William Grey, T. H. Parker, D. W. Karn, J. S. Scarff and President G. R. Pattullo, who made appropriate remarks for the occasion, and encouraged the small gardeners to continue in their efforts.

The attention of the children was pretty evenly divided between the speakers and the tempting array of fruit ranged in front of them. The president observed the longing looks that were directed towards the luscious plums and pears, and after the presentations had been made he stood treat to a basket of plums, a practical method of enjoying an exhibit of fruit that appealed very strongly to the children.

THURSDAY EVENING.

At the third and last session of the exhibition the attendance was much larger than at the two held previously and more encouraging to the promoters of the exhibition. If a fourth session had been held the building would probably not have accommodated the audience.

As on the previous evening, a most enjoyable musical programme was given opening with a number of selections on the pianoto. Miss Clara Farrell sang very sweetly "The Creole Love Song," and for an encore gave "The Tale of the Kangaroo," from "The Burgomaster"; Rev. R. J. McAlpine, Mr. P. J. E. Dugit and Mr. H. Sykes also sang in a highly acceptable manner. Misses McMullen and Bushby and Mr. E. Karn acted as accompanists.

In addition to the musical programme there was a programme of speeches and the presentation of the prizes won in the competition for the best cottage gardens and flower beds. The following were the successful competitors:

COTTAGE, GARDEN AND FLOWER BEDS.

To the President and Members of the Horticultural Society:

Gentlemen,—We beg to report as follows the result of our work as judges of cottage gardens and flower beds:

Best cottage flower garden, not to exceed $\frac{1}{4}$ acre—First, D. C. Richmond, Riddell street, \$3; second, Geo. McPherson, College avenue, \$2.

Best kept garden and grounds, including boulevards, not exceeding $\frac{1}{4}$ acre—First, H. B. Sprout, Ingersoll avenue, \$3; second, R. H. Bond, Victoria street, \$2.

Best cottage vegetable garden, not to exceed $\frac{1}{4}$ acre—First, John Whitehead, Drew street, \$3; second, Robt. White, Wellington street, \$2; third, Frand Pond, George street, \$1.

(Signed, ANGUS ROSE,
JAMES HOARE.

Rev. Dr. McMullen and Mr. D. W. Karn made the presentations.

Among the speakers was Mr. Angus Rose, who spoke in the highest terms of the gardens he had visited in his character of a judge. He also had something to say about the increasing beauty of the town and the number of gardens being cultivated.

KINCARDINE.—The officers and directors and especially Mr. Jos. Barker, the able secretary, may feel quite satisfied with their efforts in the way of horticultural displaying. The town hall was most beautifully illuminated with electric lights, and the plants, flowers, fruit, etc., were very tastily arranged. Great care was taken in the collecting, handling and displaying, and the large numbers who viewed the exhibits were more than surprised. We predict more interest in the exhibition next year, judging from the many remarks and promises made by old members, new members and non-members. The indomitable Secretary and his able assistants deserve every praise. No pains or expense were spared to make the display a complete success. The Highland Cadets added very much to the enjoyment of the hour by their sweet strains of music. As Longfellow says:—

In all places, then, and in all seasons,
Flowers expand their bright and sunlike wings.
Teaching us, by most persuasive reasons,
How akin they are to human things.
And with child-like, credulous affection,
We behold their tender buds expand;
Emblems of our own great resurrection,
Emblems of the bright and better land.

One table contained no less than fourteen varieties of sweet pea, grown and exhibited principally by Mrs. Robert Sellery and Mr. M. McCreath, our respected caretaker of God's Acre. The spacious room was filled with the delightful odor of sweet pea flowers.

On the same table were a couple of dishes of beautiful samples of peaches, the Early Canada, grown and exhibited by Messrs. McCreath and E. Miller. The first named gentleman also had on exhibition some samples of water melon, which

was delicious to the taste. We speak from practical experience for our reporter had his share of the "water melyun."

Dar war a water melyun a growin' on de vine,

Dar war a pickaninny a' watchin' it all de time,
And when dat ar water melyun was ripened in de sun,

Long comes dat pickaninny and wid that melyun run.

Gold fish owned by Messrs Wm. Bishop, sr., and P. McGaw were on exhibition under the spreading boughs of a Night Blooming Cereus; in the language of flowers meaning "a wealth of true affection," owned by Mrs. Andrew Malcolm. Then came that wonderful plant known as the Pitcher Plant, brought from near Silver Lake not far from Kincardine by Messrs S. W. Perry and W. Welsh who were appointed to gather specimens. This plant in bloom drew quite a lot of attention.

A beautiful rubber tree or plant nine feet in height, owned by Mrs. Loscomb was greatly admired.

A lovely plant was the *Plumosus nanus*. There were two varieties, the *Sprengeri* and *A. temussimus* owned by Messrs. George Hunter and Joseph Barker.

A Golden Gate Rose owned by B. Coombe and cut flowers from Victoria Park were attractive.

Messrs Perry and Welsh's collection of flowers and plants included the Hop Horn Beam (iron-wood) in seed; grasses, wild cucumber vine, *Touch-me-not*, in bloom, Sumac, Cat Tail, rare bushes with berries, Basswood in seed. There were foliage plants, a great variety of *Coleus* plants and scores of other plants of which space will not permit us to mention. There was no charge or collection and we feel sure our citizens will take more interest next year.

Another attraction was the hornet's nest we made note of in our last issue. Mr. Welsh cut the nest in two and several large hornets showed fight.

LONDON.—On Tuesday, Aug. 6th, the president and directors of the London Horticultural Society entertained the delegates attending the Canadian Horticultural convention. The forenoon was spent in a trolley ride through the city in a special Springbank car, which was profusely decorated with golden rod, gladioli, asters and bulrushes. At eleven o'clock the party proceeded to Springbank and partook of luncheon at the pavilion. There surrounded by the green hills and favoring airs of London's favorite resort, the place seemed happily chosen for an outing especially by florists, whose duties bring them so closely in contact with the beautiful in nature.

Trumpet Creepers

A lot of fine plants of this beautiful creeper

FOR SALE

At Maplehurst Nursery, Grimsby, Ont.

The Trumpet Flower, *Pecana radicans*, is a splendid hardy climber, with large trumpet shaped scarlet flowers in August. Hardy in Southern Ontario, and one of the pattern climbing plants. A fine strong plant, outdoor grown, sent prepaid, on receipt of 50 cents: Address,

P. BLANCHARD Grimsby, Ont.

Complete Set of Back volumes For Sale.

I have a complete set of the Canadian Horticulturist from the beginning in 1878, that I would like to dispose of. The first 10 years are bound in 5 vols., the rest unbound. Do you know of any one who would like to buy? Some of the younger directors might want it.

I am giving up my beautiful home, as my wife is dead and my family scattered and I am getting too old to attend to it properly, so I will not want the Horticulturist after this year.

I was a director of the Association at one time and have the reports from 1869, but I presume that they have no money value.

Yours truly,

Collingwood, Ont.

HY. ROBERTSON.

Dealers in Nursery Stock.

Before buying your fall supplies, get our prices on **Apples, Pears, Plums, Cherries and Small Fruits**. Specially low figures in some lines. Send us your lists to figure on.

CAVERS BROS., Galt, Ont.

The Possibilities of North Windows.

Few people appreciate the possibilities of sunless northern windows, where "flowers will not bloom." When given "classical" treatment with such beautiful-leaved plants as palms, ferns, dragon-trees, crotons, ivies and araucarias, which require no direct sunlight, they may be made as attractive as any windows in the house.—*The Ladies' Home Journal* for October.

Cacti Collectors

I have the largest variety and finest collection of Cacti in Canada, 400 kinds including many very rare. I make a specialty of making up collections, and can give special value in this way from \$1.00 to \$50.00.

12 varieties, postpaid for \$1.00

12 varieties, finer and rarer for \$2.00

J. H. CALLANDER

Box 533.

Woodstock, Ont.

Agriculture and Horticulture at the St. Louis World's Fair.

Interest in the Agricultural Department of the World's Fair at St. Louis in 1903, is spreading rapidly to all parts of the world.

That there will be many novel and striking exhibits in this department of the largest and highest class International Exposition ever held there can be no question of doubt.

This result will be reached by reason of two facts: First, that the Exposition at St. Louis is to commemorate the centennial of the acquisition to the domain of the Great American Republic of an area of land which, through the richness of its soil, and its climatic advantages, make it the best agricultural, and the stock growing territory on the face of the earth; the other is that the agricultural scientists from every clime and from all civilized governments on the globe are taking an especial interest in the development of the department to the highest state of perfection.

The World's Fair held within the Louisiana Purchase territory will set the trans-Mississippi country before the rest of the world in a new light. There is no longer a "Great American Desert" in the geographies, but there is a faint realization of what has taken the place of that desert. The last United States census reports show the fourteen states and territories carved out of this country that Napoleon sold to Thomas Jefferson for \$15,000,000 has now a taxable wealth of \$6,616,642,829. The figures are almost beyond comprehension.

In the Louisiana Purchase territory there are now under cultivation 165,878,336 acres. The value of these is \$3,193,461,299. This means an average valuation for this mighty domain in cultivation of \$20 an acre.

The farm products, including the live stock within the limits of this territory, make a total of \$2,876,184,431.

The Agricultural Committee of the Louisiana Purchase Exposition Company went early to work to inform the various interests over which that department has control, including besides Agriculture proper, departments of Horticulture, Floriculture, Forestry, Dairy, Live Stock and Farm Machinery and Implements, that they intended to make the Agricultural Department at the St. Louis World's Fair a record-breaker when compared with everything that had heretofore been attempted in that line.

With one accord a mighty chorus of "we'll help you to it" comes from every quarter as a response to the notification of the Committee's intention.

Suggestions from the brightest minds among the skilled agriculturalists, horticulturalists, dairymen and stock breeders as to what is best to do to succeed are plentiful, and out of them, or rather upon them as a foundation, the Committee will rear the Agricultural exhibit superstructure of the World's Fair that is to dazzle the eyes of the whole world.

From Roswell, N. Mex., Mr. Parker Earle writes to Secretary Aull of the Committee on Agriculture advancing some highly interesting and pertinent ideas. "An important display in the line of grapes," says Mr. Earle, "should be by planting in the spring of 1902 a complete exhibit of all known varieties of American grapes—some 300 to 400 varieties—in well prepared ground in the open air, planting model vines which will make a strong growth in the summer of 1902, and be in full fruitage in the summer of 1903. The same method

should be followed with the European class of grapes; only these should be grown in a suitable conservatory. Very large vines should be procured from California, which will show the peculiar training of this class. Something like 100 varieties of this class should be planted. This combined display of grapes can be made more complete and instructive than anything heretofore attempted."

Continuing Mr. Earle says, "Our people are familiar with orchard trees and an attempt at an attempt at an exhibit of bearing trees of these species would not have sufficient novelty to justify the cost, but the display of the fruits should be larger, and from more countries and climates than has been made before. I suggest that the fruit products from all the territory embraced in the Louisiana Purchase should be shown together and alongside the exhibits from the old states. But to still further show the comparative values of the old and the new parts of the United States, and the values of both compared with the same classes and varieties grown in all other parts of the world, extensive exhibits should be drawn from all countries. With the more perishable fruits this last will not be practicable, but apples and pears can be brought from all the nations of Europe, from China and Japan, from South Africa, New Zealand, New South Wales, Tasmania, etc. From every clime where the apple tree grows I would bring its harvest.

This pomological exhibit from all around the world would be exceedingly attractive, impressive and instructive, and would be one of the most notable events of the great Fair.

Why not do something better and bigger than has heretofore been attempted? It is entirely practicable."

"I would secure bearing trees of oranges, lemons, limes, shaddockes, pomelos, etc. These would all have to have glass protection. They should all be planted in the spring of 1902 and so cared for as to be in luxuriant growth and fruitage during the entire term of the Fair. In this connection certain other tropical and sub-tropical trees should be secured, such as the camphor, the nutmeg, the cinnamon and other spice trees of commerce, the rubber and other trees whose products have great value, and a great variety of trees whose woods are of greatest commercial and artistic value. This display can be made very complete."

"The most magnificent attraction of the Fair can be brought together under the head of 'palms;' cocoanut palms 40 feet high in full fruit; date palms carrying their great clusters; the royal palms of Mexico with their wondrous grace, these and a hundred others can be assembled in a magnificent palm house. What a wealth of beauty, surpassing all previous shows, is here possible!"

"It is in your power," concludes Mr. Earle, "to create a grander Exposition of the arts and industries of our civilization than has been organized in any country. I greatly mistake the wisdom and energy of your management if this is not accomplished. Among all the noble things you will do none will give so much pleasure to the millions who will come to see your work and read your lessons as to what can be done in this supreme department of beauty and grace in the domain of Horticulture.

PLANT DISTRIBUTION FOR 1902.

Free to subscribers to Canadian Horticulturist.

We are now offering special inducements to new subscribers for 1902, giving them the Journal from date of subscription until Jan. 1st, 1903, and their choice between our new introductions A. and B, described below. Send in both old and new names for 1902 as soon as possible, before the stock of plants is exhausted.

A. Fruit Plant, "ICEBERG" The New White Blackberry, the Paradox of the Fruit World. Two Plants.



THE following is Mr. Burbank's own description, and its accuracy will be vouched for by all who know him, as he is commendably conservative in all that he says about his creations. In his desire to mislead no one, he leans rather toward under-rating than exaggerating the value of his originations. He says: "Owing to the somewhat unsatisfactory qualities of White Blackberries so far known, the impression may have been entertained by some that no White Blackberry *could be* as productive and hardy, with berries as early, abundant, large, handsome and delicious, as the best black ones.

"The well-known Lawton is when ripened, unsurpassed, and very generally known as the most productive market berry. Owing to its fixity of race, it will reproduce itself from seed almost exactly, and its seedlings will not be influenced, when raised from seed pollinated by other varieties, but it steadily imparts its good qualities when employed as the staminate parent. One of the great grandparents of 'Iceberg' was Lawton. The first generation of seedlings when crossed with Crystal White, was all black; the second also, though varying much in other respects; but the third produced this wonderful plant bearing the snowiest white berries ever seen.

"Very little attention was paid to the long rows of cross-bred descendants, until one day this berry was discovered, among its black relatives, with the canes bending in various directions with their load of delicious, snowy berries, which are not only white, but so transparent that the seeds, which are

unusually small, may be seen in the berries when ripe.

"Clusters, larger than those of Lawton; berries, as near as could be judged, were at least as large, earlier, sweeter, and more tender and melting throughout, though as firm as Lawton is when ripe."

B. Flower, Deutzia Lemoinei, (shrub.)

The introducers describe it as follows:-

Flowers pure white. In comparison with other Deutzias it is ahead of them all, in that it blooms more abundantly and earlier. Its trusses are larger, double and not single. Can be readily forced with ordinary care in the house in the wintertime to bloom about Easter, thus producing excellent flowers when such a color is in greatest demand. This plant cannot fail to give satisfaction for both indoor and outdoor use. It is dwarf in growth, being about 12 to 14 inches high when delivered, having several branches. It is being introduced by nurserymen at 75 cents each plant.

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1902 in before the end of 1901. We want to make the year (1902) a record breaker for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are new and valuable.

Any person sending in two names and two dollars, may have an extra plant in place of commission and thus have for himself both the Deutzia and the blackberry "Iceberg."

New Subscribers sending in one dollar for the year 1902, may have the balance of the year 1901 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

Remember the old proverb, "First come first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.

PLEASE NOTICE that the descriptions above are by the introducers. We expect our readers to test them, and report whether these novelties are as described.





FIG. 2167. JESSICA.

Photo by Miss Brodie.

THE CANADIAN HORTICULTURIST

Vol 24 1901 No 11

* * NOVEMBER * *

JESSICA.

An excellent dessert grape for the amateur's garden.

ORIGIN: Canada, a seedling raised by W. H. Read, of Port Dalhousie, introduced by Mr. D. W. Beadle, of St. Catharines, and first described in the Canadian Horticulturist for February, 1884.

VINE: fairly vigorous, hardy and healthy.

BUNCH: 5 inches long by $3\frac{1}{4}$ broad, shouldered, compact.

BERRY: medium, $\frac{1}{2}$ to $\frac{3}{8}$ of an inch in diameter; color, yellowish green to white; skin thin; pulp tender, juicy; flavor sprightly, sweet and very agreeable, free from foxiness.

QUALITY: very good for dessert.

VALUE: market, too small; home uses, first-class.

SEASON: last of August.

ADAPTATION: general.

WHEN well grown and well ripened the Jessica is a variety of which we are not ashamed to say that it is of Canadian origin. Our photograph, by Miss Brodie, well represents its appearance, and is almost a fac-simile of a colored plate prepared for Mr. Beadle by Rolph Smith & Co., of Toronto, in 1884.

Mr. Alfred Hoskins, of Deer Park, Toronto, ripened this grape in 1883, and claimed for it productiveness and earliness, and the merit of being the only one out of twenty varieties which fully ripened its fruit. Mr. Jas. Vick writes in his monthly in 1885 that

the Jessica ripened with him, on Canandaigua lake on August 22, ten days earlier than Champion, and in 1887 Mr. S. Powers wrote of it as follows:—

The Jessica outdoes in flavor any garden grape known, and it is a wonder that no more is said about it. The little white grape, with its small clusters, is not over-attractive, but once between your lips, you will avow it has all the good qualities a grape can have in one. Sweet, with honeyed touch at first taste, succeeded by a freshness of mild acid, and a bouquet that lingers on the sense, it is a grape for connoisseurs to linger over and praise.

All these good words are fully borne out this season by its conduct in our experimental plot. Near it we had the Green Mountain, and on selecting samples of both for photographing we were much struck with their close resemblance in bunch and berry. The flavor of our Canadian was superior to Green Mountain, but otherwise one could declare them identical.

We in Canada have been much disappointed in the latter, which was introduced with so much eclat by Stephen Hoyt &

Sons, of Connecticut, It is too small for market, and inferior as a dessert grape to Jessica, and yet the Bushburg catalogue gives nearly a column to it, and less than an inch to the latter; while the Jessica is not even mentioned in the catalogue issued by the American Pomological Society.

We have had a remarkably fine showing of grapes of all kinds at Maplehurst this season.

Moyer was the first to ripen, and was quite delicious eating long before Early Victor, Berckman, Ohio or Campbell's Early were ready for use. This Moyer is another that is valuable for a home garden, but probably not profitable for market, because of its small berry and straggling bunch, but it is a treat to get so pleasing a flavor so early in August. The Moyer too is of Canadian origin.

SUCCESSFUL STORAGE OF APPLES.

THE following should prove interesting to fruit growers and produce men generally, as it proves again that cold storage of fruit pays and pays well:

For three years now we have placed Baldwin apples in cold storage with remarkable success. We refer to cold storage houses worked by ammonia and machinery, such as are built in large cities on scientific principles. We pick our apples as soon as they have matured, place them immediately in barrels, and draw at once to the cold storage house. The sooner they are put into cold storage after being taken from the tree the better; when the apples have lain in barrels for a week or two, they have not kept as well as those moved at once to cold storage house. We find that the apples shrink some, and have to be run over before shipment if held until the latter part of March. Sometimes it has taken one barrel to fill out the shrinkage of ten barrels. We often find five or ten decayed apples in a barrel of Baldwins opened about April 1. If the apples were held in barns a few weeks before

putting in cold storage we might find a peck or more of bad apples. Baldwins which we put in cold storage, and which we could have sold for \$1.20 per barrel last fall, we find no difficulty in selling in large quantities at \$3 per barrel March 15.

Our apples have been carefully graded, and have pleased our customers wherever they have gone. C. W. Jennings, a large dealer in North Carolina, writes us that he has bought many carloads of apples each year, but that he has never seen such fine apples as those we sold him; he says the quality and flavor and beauty are superior to apples he has previously purchased, and yet we do not consider our Baldwins of last year up to the average size on account of the long spell of dry weather. Our experience encourages us in placing long keeping winter apples in cold storage. It is certainly profitable to do so. We pay 50 cents per barrel for cold storage from November 1 to May 1. Bartlett pears can also be put in cold storage with profit.—*Green's Fruit Grower.*

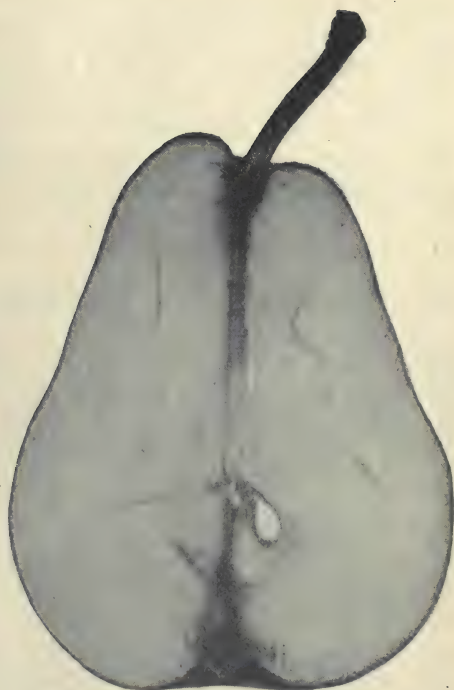


FIG. 2168. THE WILDER PEAR.

THE WILDER PEAR.

A valuable early market pear, being beautiful in appearance, of fair size and very good flavor; probably the best of its season, but inclined to rot at the core if left hanging on the tree.

ORIGIN: chance seedling on south shore of Lake Erie.

TREE: vigorous, very productive and an early bearer when grafted on the quince.

FRUIT: fair to large in size, $2\frac{1}{2}$ to 3 inches in diameter; form, ovate, obtuse pyriform, sometimes shouldered at stem; color, greenish yellow, with deep red cheek and numerous grey dots; stem stout, $\frac{3}{4}$ and 1 inch in length, calyx open.

FLESH: white, tender, fine grained; flavor sweet, aromatic and very pleasant.

SEASON: August 12th to 25th.

QUALITY: dessert, very good.

VALUE: home markets, excellent.

yellow ground. The Giffard, an excellent variety, and the Summer Doyenne were just over for all purposes, the Clapp not ready, and if perchance there were some of the former still hanging, they were not to be looked at when such fiery cheeks were in view as were presented by the Wilder.

Our readers will be interested in the following little account of this pear, which we found in an old copy of *The Farm and Home*:—

The original tree of this delicious pear was found on the shores of Lake Erie. It came up wild in a thicket of sprouts and rubbish and was grafted to Buffum, a few branches being left for natural fruit. The latter was found to be so good the Buffum branches were removed. Since then the tree has borne profusely each year. It

WE have a few trees of this variety in our experimental plot, and there was none of them that attracted so much attention as the Wilder by reason of its rich beautiful dark red cheek on a

somewhat resembles Bartlett in shape with smooth skin, pale yellow with a deep shading of brownish carmine. The basin is shallow and regular, the eye nearly closed, sepals long and reflexed, apex rather abrupt with slight cavity, stem short, core closed and small. Seeds small, flesh pale whitish yel-

low, fine grained and tender. Its quality is very good, resembling the Bartlett, but the flavor is more sprightly and free from all muskiness. It is in season in August in New York. The tree is a vigorous, upright grower, wood dark, resembling Clapp's Favorite.

BLACKBERRY CULTURE.

FOR blackberries I prefer clay soil, as it holds the moisture much better than black loam. After putting my ground in good condition for planting I take a single shovel plow and run furrows eight feet apart. Then I took good thrifty plants and plant in the furrows four feet apart in the row. When through planting I cultivate between the rows to fill up the furrows. The first season I raise potatoes between the rows set. I hoe and cultivate blackberry plants every season and do not mulch with hay or straw. I prefer keeping the ground clean and a dust mulch. Plow two or three times a week with cultivator.

My experience has been mostly with the Snyder. I think they are most prolific in bearing and surer of a crop than Ancient Briton or Stone's Hardy. With me the canes do not grow large or stiff, which makes them easier to lay down in the fall. In this respect I prefer the Synder, and they are not much harder to handle than raspberries except for the thorns. In put-

ting them down I use the same method as in raspberries.

I do not pinch or trim the vines off in spring, but I go through and trim off the new wood that comes out in the way of picking the fruit. Early in the spring I cut off the tops of canes that are to bear fruit, leaving canes three and one-half to four feet high. Pruned in this way, they send out branches producing a heavy crop of fruit. The last two years I have received \$2.00 per case for 24 quarts each throughout the season, making \$200 per acre some seasons. Some of my neighbors have tried raising blackberries on marsh lands, but it has not proved a success. One great objection is that the stalks grow too large and are then too brittle to lay down. I do not wire them upon a trellis, as the vines hold the fruit up good in clay ground. Those vines that are eighteen inches to two feet above ground and where the fruit is shaded, I find bear the largest and sweetest berries.—*Report Minn. Horticultural Society.*

GRAPE WINE.—No. 1: To 1 qt. grape juice, add 3 qts. water, $2\frac{1}{2}$ lbs. brown sugar, stir until the sugar is all dissolved, and store in an open vessel for three weeks, covered with mosquito netting or cheesecloth, to protect against insects. Put in jugs and keep closely covered until March or April, then rack off, bottle and seal.

No. 2: To each gallon of juice, add 1 lb. white sugar, let stand 3 days, skim, strain and measure, and to each gallon add another pound of sugar, let stand three days, measure, and again add a pound of sugar. Bottle and seal. This recipe makes a very rich, sweet wine.

NOTES ON SUMMER PEARS.

OUR experimental plot of dwarf pears consists of over fifty varieties, and we had hoped for a splendid assortment of samples for our report, but, unfortunately, the same condition which blighted our hopes as commercial fruit growers, also swept away our hopes of a grand collection of varieties for study and for exhibition purposes.

The first pear to ripen with us in the season of 1901 was Summer Doyenne about July 30. The fruit was in clusters, very small, too small for market, but of delicious quality for dessert. The trees are not as thrifty as Brandywine or Wilder. The last picking was August 12th.

The Chambers closely followed the Summer Doyenne, ripening about the 5th of August. The trees are heavily loaded, and the fine size of this pear makes it the most promising variety of its season for

market. The tree is vigorous and healthy and, so far, has not shown any tendency to blight. The last picking was August 20th.

The Giffard closely followed Chambers in season of ripening, coming in this year, which is unusually late, about August 10th. It yielded a good crop, and the quality is so good and its appearance so pleasing, that it is the most largely planted for market in the Niagara district of any early variety.

Osband's Summer ripened about August 10th, and is a variety over much planted; this year the trees were heavily loaded, but very small, especially on the older trees. We do not recommend the planting of this variety now that finer ones of the same season have come in.

Lawson and Andres des Portes ripened about August 12th, on dwarf trees, but both are rendered worthless by a fault in com-



FIG. 2169. ANSAULT.

mon, namely, the rotting at the core almost before maturity. Lawson is a beautiful pear and the tree is very vigorous, but this season is unproductive, and fruit stung with the curculio.

Wilder ripened about the same time, reaching full maturity and beauty about August 15th. The quality is fine when not allowed to hang too long and become mealy. The pears grow to above medium size and take on such gorgeous coloring that passers by are compelled to stop and look in wonder.

owing to its dull green color, it would not sell for any more than other small pears, and brought only about 30 cents per twelve quart basket in the Ottawa market. If this pear could have the superb coloring of the Wilder, it would be a wonderful treasure.

The Tyson began ripening about the last week in August, and, if left hanging, would come in about with the Bartlett; but it is so much smaller and inferior to that variety that we gathered the Tyson while still green and shipped them forward so that they

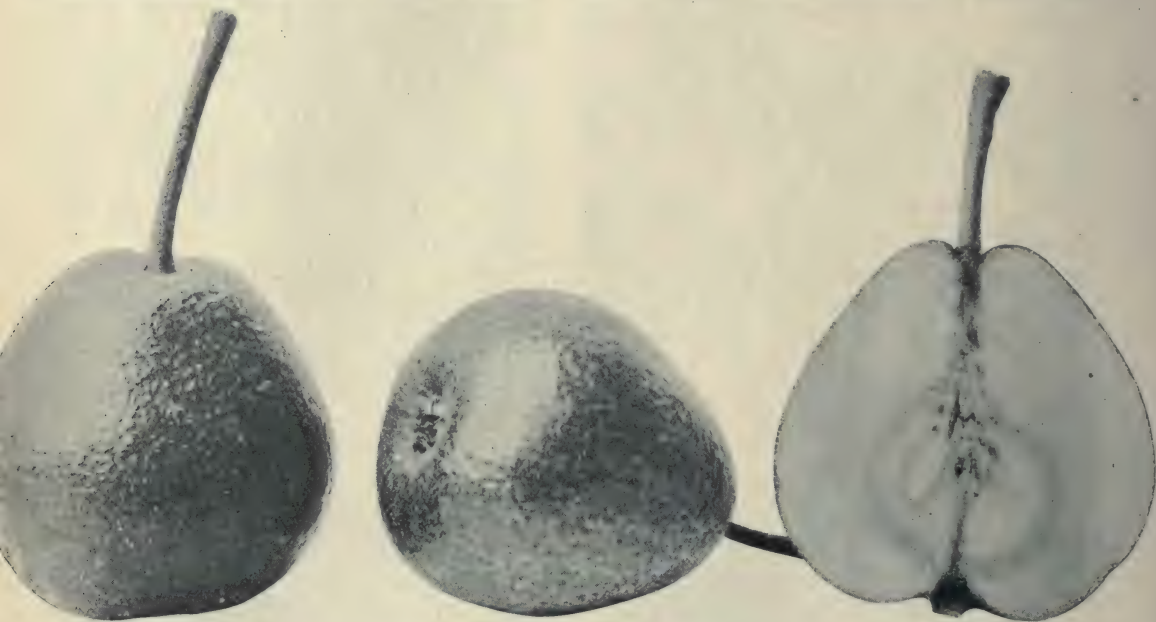


FIG. 2170. MANNINGS ELIZABETH.

Surely this would be a grand seller.

Manning's Elizabeth began to ripen on the 17th of August and continued in use, many still hanging, until the end of August. They were borne in great clusters and the tree showed great productiveness, but the fruit was too small to be valuable for the market. The quality was very good.

Rostiezer came in about the same time, and was unusually large, averaging $2\frac{1}{4}$ inches in transverse diameter. The quality is the very best for dessert purposes, but,

might not come into competition. The trees are wonderfully healthy and vigorous. Some of them are now fifty years old and have never shown the least indication of blight.

The Brandywine began ripening about August 23rd. The samples were above medium size for pears, and fairly attractive, with dull red cheek on a yellow ground.

Clapp's Favorite was harvested about August 20th. It had attained full size and color, but was not ripe. The samples were magnificent. No pear of its season equals



FIG. 2171. WEALTHYS PLANTED 10 x 10 FT. APART AT THE C. E. F.
AS AN EXPERIMENT.

it for market. The year previous we exported a large share of our Clapps and they sold at the best prices.

Doyenne Boussock bore a magnificent crop; one tree twenty years planted yielded twelve baskets of fine pears. This pear ripens throughout September, about the same season as Bartlett, but we usually harvest it in advance of that variety.

The Bartlett came in about the 1st of September and continued ripening until its season was over, about the 15th of September. It was subject to knots and scabs on clay soil poorly cultivated, but, where cultivated and manured, it gave a magnificent crop of very fine fruit. We put up several hundred cases for the Glasgow market and will report the result later on in the season.

Among the newer pears, we were much pleased with the Ansault (page 451) as a dessert pear. Too soft for distant shipment, it would find a place only in gentlemen's gardens. It is not very attractive in appearance, being a dull green, nearly covered with russet, but when cut it reveals the finest and most delicate texture of flesh which can be described only by the old term "buttery", while its rich, sweetly perfumed flavor is is most agreeable to the taste. The samples were photographed about the 20th of September, and remained on our table until about the 7th of October when one of them was spoiled and the other in the last stage of ripeness.

CENTRAL EXPERIMENTAL FARM NOTES—XVIII.



ANOTHER season has come and gone and with it another year's experience has been gained with the many species and varieties of fruits and vegetables, and the trees, shrubs and herbaceous plants being tested at the Central Experimental Farm. This year has more fully convinced us of the value of some things and the inferiority of others.

The apple crop was light at the Farm this year, as it has been nearly everywhere, and though there was no scarcity of summer and autumn apples there is little winter fruit. The Wealthy apple does not appear to succeed as well in Western Ontario as it does here and in some parts of the province of Quebec. This variety is a wonderful bearer and it is surprising that the trees live after the great crop which they produce. The fruit in this part of Canada becomes highly colored, keeps in condition until early winter, and is of good quality. There is no apple of its season tested here that can compare with it as a commercial fruit.

The McIntosh Red apple grows in favor every year. It seems perfectly adapted to this part of Canada, the tree being very hardy and a vigorous grower, and the fruit highly colored and of excellent quality. Where the trees are properly sprayed there is little trouble with the black spot fungus, and though there is never a heavy crop the tree bears annually. The Salome is one of the few winter apples that has fruited well this year. This variety is a good keeper and if the fruit were not so irregular in shape would be one of the most desirable winter apples for this part of Canada, as it keeps well and is a very handsome fruit, but there is always a lack of uniformity about it which is very much against it. The Milwaukee is one of the most promising of the newer winter apples which have fruited here. This variety is a seedling of Duchess of Oldenburg, which it resembles somewhat, but is flatter. The quality also is not unlike the Duchess. Trees planted in 1895 began fruiting in 1899, and there has been a crop

every year since. The fruit keeps in a good cellar until the 1st of March.

The cherry crop was a failure, the flowers being killed by winter. There has not been a full crop of cherries here since 1898.

There were practically no European plums, but many of the American varieties yielded well. The demand for these plums at Ottawa is at present greater than the supply, and good prices are obtained for them. The number of varieties of American plums under test at the Experimental Farm is now very large and every year additions are made. After this year's experience the varieties considered the most satisfactory are the following in their order of ripening:—Bixby, Cheney, New Ulm, Wolf, Silas Wilson, Stoddard, and Hawkeye. These varieties cover a period of nearly five weeks. Several seedling American plums have been originated here which are very promising, being of large size and of better quality than most of the named varieties which have fruited here.

Last winter raspberries suffered very much in this locality, as a result of which the crop this year was small. A seedling known as Herbert, which was originated several years ago by Mr. R. B. White, of Ottawa, proved much hardier than most of the other varieties tested and there was a good crop of it. It is hoped that this fine variety will soon be offered for sale as it should prove a most desirable acquisition to the kinds now on the market. It is of the largest size, bright red, moderately firm, of good quality and very productive, and its hardiness will make it especially valuable in the colder parts of the country.

The strawberry crop was fairly good here, though the season was much shorter than last year owing to dry weather. A season

like the past brought the bad points of Clyde into prominence. This variety promised a very heavy crop, but owing to the small amount of foliage and the hot weather the fruit was literally "cooked" and little of it was fit for market, while a large proportion of the crop never ripened. The Glen Mary, Buster, Bubach and Williams all did well and are among the best of the varieties tested. It is unfortunate that the Wm. Belt does not succeed better when grown in the ordinary way, as it is of the best quality, but it is not as good a berry as many of the older varieties. The St. Joseph, an over-bearing kind, much advertised in Europe, has not proved a profitable kind to grow here and while an odd berry may be found as late as October there were so few that it is not worth growing for the sake of getting them. Judging from this year, Rough Rider is not as good a berry as many of the older varieties, and the Senator Dunlap did not yield as well as many other kinds.


The potato crop was good here this year, though a light crop is reported in this vicinity. The long continued hot, dry weather checked the growth of the vines very much where proper cultivation was not given, but on the Farm they grew well.

The results of spraying with Bordeaux mixture to prevent blight were more noticeable than usual this year and the crop was much greater where the vines were sprayed than where they were not. The following four varieties produced the largest crop of marketable potatoes:—Burnaby Mammoth, Uncle Sam, Drees's Standard, and Early White Prize.

W. T. MACOUN, Horticulturist
Central Experimental Farm,
Ottawa.



OUR HORTICULTURAL SOCIETIES AS LOCAL IMPROVEMENT ASSOCIATIONS.



WHILE attending the convention of the National League of Improvement Associations at Buffalo, in August last, we thought of our own excellent Horticultural Societies and could see no reason why in Canada any additional organization would be needed, if our societies are willing to enlarge their work a little. Here is a list of objects

FIG. 2172. A VINE-WREATHED LAMP POST.

which are before this League, all of which we believe should be the objects for which our societies are seeking increased interest and co-operation :—

- Arbor Day.
- Artistic home planting.
- Botanical gardens.
- Children's improvement associations.
- Cemetery improvement.
- Cleansing and beautifying public buildings.
- Care of vacant lots.
- Cycle paths.
- County park systems.
- Collection of natural objects.
- Educational excursions for school children.
- Factory planting.
- Flower and fruit mission.
- Floral exhibitions.
- Foot-paths for reaching scenic beauties.
- Fountains and wayside springs.
- Garbage crematories.
- Good roads and good streets.

Home bee culture.

Hand-books and guide-posts locating points of interest.

Historic and scientific museums.

Improvement of city back yards.

Increased attractiveness of farm life.

Lectures on nature and outdoor topics.

Model children's gardens.

Nature study.

Neighborhood gardens for boys.

Open-air band concerts.

Parks for all the people.

Proper care of streets and alleys.

Private residence parks.

Prize awards for home planting.

People's play grounds.

Public assembly and lecture halls.

Proper patriotic celebrations.

Public baths.

Popular instruction in landscape gardening.

Public libraries.

Pleasing church exteriors and surroundings.

Photography as promotive of improvement.

Popular art collections.

Preservation of native plants and animals.

Preservation of historic buildings and localities.

Preservation of groves and natural features.

Removal of unsightly fences.

Rural libraries and reading clubs.

Removal of bill-boards and objectionable advertising.

Railway station grounds.

Rest rooms in towns and villages.

Summer camps for boys and girls.

Study of civic improvement.

School gardens.

Shelter houses for parks and cemeteries.

School yard planting.

Sanitary and storm sewage systems.

Street, road and river-side planting.

Street and road sign-posts.

Traveling libraries.

Vacation schools.

Vacant lot cultivation.

Together with other local needs of home and community.

Miss Jessie M. Good, of Springfield, O., has written a pamphlet on

"THE HOW OF IMPROVEMENT WORK,"

from which we extract a few paragraphs. She says:—

If your town is bleak and unshaded, plant trees, but give a thought to what and how



FIG 2173. THE ROAD PASSING FAIR GROUNDS, BEFORE IT WAS IMPROVED.

you plant. Because you love elms you certainly show a selfish affection when you plant them twenty feet apart upon a paved street sixty feet wide, knowing, as you must if you love them, that the elm is one of the trees that needs great space and moisture for its full development. Few shade trees should be planted closer together than from twenty-five to thirty-five feet. Why not intersperse them with some ornamental flowering trees—red-buds, dogwoods, crab-apples, catalpas, etc.? Why always plant forest trees for city shade? Why not plant fruit trees? I see you smiling, but in Erie, Pennsylvania, I know that years ago Parade

street was shaded for many squares by cherry trees that were a perennial delight, beautiful in their neat, compact growth and glossy foliage, and a joy when in blossom and fruitage. But did not the boys steal the fruit, you ask? The loss was not material. Boys who have all the ripe cherries they want at home, will not steal cherries away from home. They will hunt for green apples.

If it is sidewalks you most need, create such a strong public sentiment in their favor that those reticent old taxpayers who always protest against everything but a reduction of taxes will not dare fight against the improvement. But do not think when you have laid new sidewalks and planted your trees that your work is finished. It is but begun.

What is the condition of your back yard and alley? Is the latter an impassable mire in winter and a weedy lane in summer, or is it a well-graded, rolled and drained passage-way? Is your back yard green with grass and gay with flowers, making it a beautiful and wholesome place in which your children may play? Or, is it a death-trap, adorned with a fragrant swill barrel, heaps of ashes and garbage, piles of old boards, an untidy fence, while the bare ground is soaked with greasy dishwater, making it a place abhorrent to your children as a playground, and as unsafe from a sanitary point of view as a sewer? If you have such a back yard, let me tell you the day is nearly over when educated people keep what some one has wittily called "Queen Anne fronts and Mary Ann backs." Can you wonder why Johnny and Willie prefer to play in the street instead of the yard? I think their preference for the street shows a proper instinct and good judgment.

Does your grocer and fruiterer expose the foods he expects you to eat to the dusty contagion of the street? If so, you should teach that you never offer such contaminated

foods to your family. If an organisation of influential housekeepers speaks clearly upon this point, glass-covered boxes will be quickly provided that will show the goods quite as well.

How about your dairy supply? In a certain town a shocking infant mortality was traced to the milk. A body of indignant women making a protest against an incompetent dairy inspector was told by the politician, of whom the inspector was a protege, that they were going outside their sphere when meddling in politics. He was quickly answered that "women's sphere was not only outside the home but inside the baby." A weekly or fortnightly visit by a committee from an improvement association would have a deal to do with wholesome dairy premises. No educated woman of this age dares to be indifferent as to the source of the food with which she supplies her family. Beauty and health are synonymous terms—you cannot have one without the other.

Have you parks and open squares as breathing places for the people? Have you public playgrounds for your children? This one matter of public playgrounds in all towns is of vital importance. When the influence upon the character and morals of children of healthful play under the care of a watchful, high-principled man or woman is fully understood, no money will be spared to provide such playgrounds, and a new profession, that of play professor, will be among the honorable and well-paid callings.

The possibilities of such playgrounds are almost unlimited. What mother would fear to send her boys to the public playground if she knew that awaiting them was a man who could teach or oversee them in their games and athletic sports, noting and repressing evil tendencies in speech and manner? On occasion such a man would take them on fishing and swimming trips and excursions through field and forest. The woman teacher has charge of the girls' plays

and games, and teaches to both sexes—without seeming to teach—botany and nature study and kindness to birds and beasts, until even boys will see a bird, or cat, and a stone in juxtaposition without desiring to pick up the one and throw it at the other. This is not a fevered dream of mine. In a modified way these playgrounds are being tried in various cities, with the happiest results.

Are there any provisions for public baths in your town? If there are none please observe on the following pages what Brookline, Massachusetts, offers its citizens. Interest the young men of your town in this matter.

Have you casinos where the social life of your town may find expression? Have you a public library? If not, and your town is too small to support one, there are ways of obtaining traveling library cases. If your state library has no provision for distributing to the people the books your taxes so expensively house, petition your legislature until these books reach the people who need and want them.

The disfigurement of streets and landscapes by bill-boards and advertisements is a nuisance that is attracting the attention of many of the best men, both at home and abroad.



FIG. 2174. THE SAME ROAD AFTER BEING IMPROVED BY THE LOCAL SOCIETY.

PAN-AMERICAN HORTICULTURE—V.

SIR,—Before this number of the Horticulturist will reach the hands of your subscribers, the Pan-American Exhibition will have passed the last milestone of its existence, and to a great extent will have become a memory. As a representative collection of the achievements of the Americas in Science, Art and the various industries, which have been here displayed, it will live forever in the thoughts and memories of those who have been privileged to enjoy its beauties. It will also, I am sure, have a very potent influence upon the minds and hearts of the many thousands who have visited the grounds and buildings during the past summer, in giving a strong impetus to the love of the beautiful and artistic, and, I believe, that the influence will come with greater force to no class of people than to those who are engaged in cultivating the soil in the neighboring republic and in this Canada of ours. Inasmuch as our Canadian people have visited the Exposition in vast numbers and have repeatedly done so, there is no doubt thoughts and ideas have been carried away in connection with the improvement of home surroundings in our rural sections, and a longing to reproduce in a modified way, around home and farm, some of the beautiful effects that have been seen and admired. This will result in more careful selection, more thorough cultivation, and a greater attention to the small details of landscape improvement and adornment, and thus we will see on every side steps taken in advance that will be of exceeding value to every section of our country.

I, however, Mr. Editor, started out not so much to give your readers a dissertation on the general result of the Exhibition as a whole, as to send you a few jottings having

reference to the Horticultural features, more particularly of our own exhibit. Ever since the meeting of the American Pomological Society, on the 12th and 13th of September last, the fruit exhibits have been at their best, and from day to day a magnificent collection of the fruits indigenous to the United States and Canada has been maintained. In this friendly competition, thanks to the hearty co-operation of so many fruit growers from all over the Province, I am glad to be able to say that we have had no particular cause to be ashamed of our display. As the awards in our Department for fruits at this writing have not been finally determined, it will be premature on my part to go into particulars; I might, however, say that so far, we have obtained one gold medal, three silver, three Wilder silver, four bronze and two awards of honorable mention upon our preliminary entries, and I trust that these awards are but a harbinger of what is to follow. In the brief space at my command it will not be possible for me to mention more than a very few of the principal exhibitors during the past month. In apples, Messrs. W. H. Dempsey, Trenton; Harry Dempsey, Rednorsville; R. L. Huggard, Whitby; Francis Peck, Albury; R. J. Graham, Belleville; Harold Jones, Maitland; Prof. Macoun, Central Experimental Farm, Ottawa; Wm. Rickard, Newcastle; Thomas C. Hagaman, Oakville; J. Pritchard, Harriston; C. L. Stephens, Orillia, and many others, have furnished as fine specimens as it would be possible to procure even in a season of full crops of this standard fruit. From the Queenston, St. Catharines, Fonthill, Niagara, Brantford, Grimsby and Essex districts, through many constant contributors, we have had an excellent supply of peaches from day to day, and I can

safely say that our peach and grape display has attracted a great deal of attention, and has elicited many exclamations of surprise and amazement. Supplies of assorted fruits have been coming in regularly from the Burlington Horticultural Society, sent in by nearly every member, through Mr. W. E. A. Peer, who was appointed collector. In grapes and pears, Messrs. Orr, Pettit, Pay, Stewart, Haynes, Griffiths, Secord, T. R. Merrit and yourself, Mr. Editor, are only a few out of many who have contributed largely in this respect. We have also had a full and constant supply of cut flowers in season from Messrs. Morris, Stone and Wellington, Fonthill, and our old friend, Roderick Cameron, of Queen Victoria Park, Niagara Falls, adding much to the beauty of our exhibit. In tropical fruits, Mr. Randall, of Niagara-on-the-Lake, has sent us white Genoa figs on several occasions, and our Florida and California neighbors have been astonished by the production in Canada of fine samples of *Philodendron* or *Monstera Deliciosa*, a most delicious tropical fruit.

A full list of the various exhibitors is being prepared, together with whatever awards will have been given, and will appear in due course. It will be my desire that every exhibitor shall receive a copy. As I have already trespassed on your space, I will leave the final summing up of the results until a later issue.

Buffalo, N. Y., W. H. BUNTING.

Oct. 18th, 1901.

PAN-AMERICAN NOTES.

Before these words reach the eye of the reader of the *Horticulturist* the Pan-American Exhibition will most likely have come to an end. The great buildings, majestic tower, and temples of all the arts, which have been the scenes of busy life and friendly rivalry for the past six months will have become desolate, and

the busy hands that were engaged twelve short months ago in rearing those majestic structures will be again employed in their destruction and defacement. But while defacements may go on, even to the complete obliteration of those temples of industrial manifestation the memories of competitive triumphs and national honors won will remain to many of us a proud and pleasing recollection. Especially will this latter be the case with the thousands of Canadians who visited the great Exposition and noted with proud satisfaction the honorable position their country held in all the competitive and industrial departments in which she entered. Say what you will of the average Britisher, he is very much of a sentimentalist as well as a shopkeeper, and when he tastes his roast beef and plum pudding and finds it a trifle better in quality, then his bucolic breast will swell with national pride quite as perceptibly as that of his more demonstrative neighbor the Frenchman.

In his patriotic sensibilities the Canadian is more acute than the old-land Britisher, and his national enthusiasm is keener and more manifest.

It was my privilege to be a visitor at the Pan-American, and also at the meeting of the American Pomological Society held at the Epworth hotel in Buffalo when the Wilder awards for the special fruit exhibits were announced. And when the name of our own province was announced as having won a silver medal for a general collection of fruits, another silver medal for a display of grapes, a bronze medal for an exhibit of plums, and still another for a general collection; and this in competition with the great fruit districts of the United States, it is needless to say that the Canadians present let the rest of the meeting know they were there.

Our own general fruit exhibit in the horticultural building I was especially proud of. At first sight it did not strike one as attrac-

tive as the Wisconsin display close beside it. But on closer examination our display had the far greater quality and value. While the Wisconsin exhibit was largely made up of such showy apples as McMahan's White, Wolf River, Alexander, Wealthy, Fallwater, and Maiden's Blush; the Northern Spy, Baldwin, Ben Davis, King, Russet, and several of the pippins, entered largely into the Canadian display. In pears, during my visit, there was no state exhibit better up than the Canadian; and this might likewise be said of grapes and plums. In peaches, while Ontario made a very creditable display, and one sufficient to create considerable wonderment among American and foreign visitors, Michigan, with her extra display of this luscious fruit, of course carried off the palm.

It was quite natural that Ontario surpassed all the States in apples of long keeping quality; and the cold storage exhibit, then in September, still sound and fresh, was a striking object lesson to the visitor in proof of this fact. I noticed that all the western States ran to showy apples such as I have named above, while New York State alone crowded Ontario closely in fruit of real solid quality.

I cannot leave this subject without a word of commendation to Mr. Bunting for his management of the Canadian fruit exhibit, and a word of congratulation as well for the success he had made in attracting attention to it. No Canadian fruit-grower could be otherwise than pleased with the manner in which the fruit interests of his country were presented at the great continental Exposition. And how can I close without a word for our old friend Mr. H. H. Groff? Truly his display of gladioli in the wing of the horticultural building was the admiration of everybody. Even a visitor from Bermuda remarked that he had not seen anything like it before in the world. "Where is Simcoe," one lady from the South asked, and when

told that it was up in Canada she exclaimed "What! did all this lot come from that country?" It is but a mild compliment to Mr. Groff to assure him that he scored a greater triumph in the expressions of admiration that his magnificent gladioli display drew from the thousands of visitors who stopped to look with delight upon it than in the thirteen prizes and medals he captured out of the total fifteen offered. Ten thousand spikes of gladioli in constant display for six weeks is a sight no other man could have given to the world save Mr. Groff.

Mitchell.

T. H. RACE.

AN ATTRACTIVE FRUIT DISPLAY.

It was naturally expected that Canada would make a good showing in live stock and dairy produce at Buffalo. Live stock and dairying are well established industries in this country, and even our American friends have begun to learn something of what Canada can do along this line.

But fruit production is a comparatively a new thing. It is only within the last quarter of a century that apples have been produced in any considerable quantity in this country, while peach-growing and vineyards, on a commercial basis, are a matter of yesterday. Still this Province alone has made an exhibit at Buffalo, in everything except the tropical fruits, which has equalled that made by the best of the States across the line. As Mr. Norris, master of the New York State Grange, said last week (and he kept well within the limits of truth in doing so), "Ontario does not take much of a back seat from any of them."

Mr. Norris' statement is well sustained by the preliminary list of Exposition awards published last week. This list shows that the Province obtains no less than nine awards on fruit—one gold medal, three silver medals, the same number of bronze medals, and two "honorable mentions."

These awards were divided as follows :

Gold medal—Display of wines, Ontario Department of Agriculture.

Silver Medals—Installation of exhibit, Department of Agriculture ; general display of domestic and canned fruits and vegetables, Ontario Department of Agriculture ; pickles and relishes, Shuttleworth & Harris, Brantford.

Bronze medals—Wines, Geo. Barnes, St. Catharines ; wines, E. Girardot Wine Co., Sandwich ; wines, J. S. Hamilton & Co., Brantford.

Honorable mention—Canned fruits and vegetables, L. M. Schenck & Co., St. Catharines ; Mineral Water, Spring Bank, A. J. Bain, St. Catharines.

AN ATTRACTIVE DISPLAY LAST WEEK.

The tables in the Ontario department of the Horticultural building were particularly attractive last week—laden as they were not only with still luscious looking grapes and peaches, but with the fruit of this year's later apples as well. Warden Rickard, of the United Counties of Durham and Northumberland, who showed early in the season the best last year's Spys seen during the whole Exposition, had on show some of this year's apples that were no discredit to the reputation already earned. While his 1901 Spys were not equal to those of last year, they were still remarkably good, and his specimens of Ben Davis, Greening, Baldwin, Fameuse and Alexander, were splendid specimens in size, color, and freedom from blemish.

W. H. Dempsey, of Trenton, had on the table some fine La Rues and McIntosh Reds, the former being particularly handsome.

Harold Jones, of Maitland, showed some of the Scarlet Pippins and Fameuse of the kind which have given him a Provincial reputation, and J. Pritchard, of Harriston, sent as his contribution some Alexanders almost equal to the one which recently made the centre of the face of a barrel.

The finest quinces seen in the building last week were those shown by J. Clement, of Brantford, and as proof that Ontario is nearer the tropics than the North Pole, fine almonds were shown by Robert Currie, Niagara, and perfectly developed peanuts were exhibited by J. Haven, of Louth township. The keeping quality of our fruit was illustrated by the fact that Wickson plums, which had been on the open table for weeks, were still firm.—*The Weekly Sun*.

NOVA SCOTIA AT THE PAN.

SIR,—It was with extreme pleasure that we welcomed the advent of the genial President of the Nova Scotia Horticultural Society, Mr. Bigelow, and his excellent wife, to the circle of exhibitors in our building.

Mr. Bigelow arrived about Oct. 1st with a very fine consignment of Nova Scotia fruit, including the celebrated Gravenstein, Tompkin's King and Ribston Pippin apples in quantity, and very fine samples of about 84 varieties of apples and 20 varieties of pears, also an excellent display of Nova Scotia potatoes. He has taken up the location occupied by North Dakota in the earlier part of the season, and has certainly staged an exhibit of very fine fruit in a most attractive manner. The casual visitor to the Horticultural Building will now find the fruit products of Canada displayed at either end of the building to which he may chance to go. Ontario occupying a large space in the south section and Nova Scotia being found at the extreme north side. Mr. Bigelow has displayed great taste in his arrangement of flags, having placed a portrait of our late beloved Queen Victoria with an English flag and another of the late President McKinley with an American flag upon a large Nova Scotia flag, and draped the entire group with royal mourning, expressing a fine sentiment and giving a most beautiful effect. Mr. A. C. Starr, who has sold his orchard of 26 acres of apples this summer for the sum of \$8,000.00 is one of

the principal exhibitors through Mr. Bigelow. There are in all 14 exhibits in the names of different individuals entered for awards, and if quality counts, as no doubt it does, I am sure Nova Scotia will obtain her share of awards. The far Eastern Province is to be congratulated upon having such a public spirited citizen as Mr. Bigelow, who has got together such a creditable display.

I fear, Mr. Editor, that I am again trespassing on your space at too great a length, but I felt as though your readers would be pleased to learn something about what our Nova Scotia friends were doing here.

WM. H. BÜNTING.

Buffalo, Oct. 21, 1901.

REPORT OF COMMITTEE ON AWARD OF WILDER MEDALS.

The committee on Wilder Medal awards begs to report that it has examined the fruit placed on exhibition in the Horticultural building and recommends that the following medals and awards be given.

The following Silver Medals were awarded:

Los Angeles Chamber of Commerce, Los Angeles, Cal. General display of fruits and nuts.

Ellwanger & Barry, Rochester, N.Y. Display of fruit, pears 131 plates, plums 50 plates, grapes 52 plates, apples 90 plates.

M. Pettit, Winona, Ont., Canada. Collection of 131 varieties of grapes.

Albert Pay, St. Catharines, Ont., Canada. Display of fruit. Peaches 21 varieties, apples 3 varieties, quince 1 variety, grapes 32 varieties, plums 23 varieties, pears 26 varieties.

Kansas State Horticultural Society. Collection of fruit. Apples 140 plates, peaches 14 plates, pears 21 plates, plums 6 plates, grapes 31 plates.

Ontario Fruit Experiment Stations, L. Woolverton, secretary, Grimsby, Ont. Display of fruit. Apples 119 varieties, grapes 20 varieties, plums 22 varieties, pears 43 varieties.

Horticultural Department, Cornell University. Collections Hybrid plums, pears and grapes.

T. S. Hubbard Co., Fredonia, N.Y. Fifty varieties grapes.

Geo. S. Josselyn, Fredonia, N.Y. Sixty varieties grapes.

Missouri State Horticultural Society. Display of 900 plates fruit.

Wisconsin State Horticultural Society. General display of fruit.

Theodore Williams, Benson, Nebraska. Collection of Seedling and Hybrid plums, and as a recognition of valuable work done in cross-breeding plums.

Oregon State Fruit Exhibit, Display of fruit in charge of H. E. Dosch.

Washington State fruit exhibit, in charge of Chas. H. Ross. Display of fruit.

The following Bronze Medals were awarded:

C. C. Shaw, Milford, N.H. Collection of apples.

W. M. Orr, Fruitland, Ontario, Canada. Collection of fruit. Grapes 5 varieties, peaches 5 varieties, plums 20 varieties, pears 10 varieties.

Michigan Agricultural College. 28 varieties pears.

W. E. Rowe, Grand Rapids, Mich. An exhibit of commercial fruit of this day, Sept. 13th, 1901. Pears, Angouleme (Duchess), Bartlett; grapes, Worden, Delaware; peaches, Elberta, Engle Mammoth; plums, Wickson, Grand Duke; apples, Wealthy, Maiden Blush.

South Haven Sub-Station Michigan Agricultural College. Collection of fruit. Pears 14 plates, peaches 20 plates, grapes 4 plates, apples 9 plates, quince 1 plate.

Maine Pomological Society. Display of fruit.

Orlando Pineapple Association by C. E. Howard, Orlando, Florida. Exhibit of pineapples.

Luther Putman, Cambridge, Vt. Collection of 33 varieties Vermont apples.

The following received Honorable Mention:

Fred Pfeifer, Jacksonville, Florida. Carson Pomelo exhibit.

Exhibit by Los Angeles Chamber of Commerce: Southern California Fruit Exchange, Valencia Late Oranges. C. W. Leffingwell, Whittier, Cal., Eureka lemons. New Hope Fruit Farm, Santa Ana, Cal., Fall Pippin. A. P. Griffith, Azusa, Cal., Citron of Commerce. Ludwig & Mathews, Los Angeles, Cal., Hungarian prunes. Rivers Bros., Los Angeles, Cal., Black Morocco grapes.

Silas Wilson, Atlanta, Ia. Exhibit of McPike grapes.

W. E. Rowe, Michigan State Fruit Exhibit. Exhibit of commercial plums, Wickson, Washington, Pond Seedling, Duane Purple, Lombard.

Roland Morrill, Benton Harbor, Mich. Exhibit of Elberta peaches.

S. Copper, Delavan, N.Y. Photo Pan-American strawberry with potted plant bearing fruit.

G. H. Gibbons, Winter Haven, Florida. Exhibit of Hart Late orange.

W. B. K. Johnson, Allentown, Pa. Collection apples, pears, peaches and quinces.

In addition to the above the committee noted the following exhibits:

F. N. Benham, Diamonddale, Mich. Wolverine apples, which at this time were not sufficiently mature to test.

G. E. Ryckman, Brocton, N.Y. Chautauqua climbing currant, an interesting form of a trailing currant bearing fruit of the size and appearance of red grape.

E. P. Beebe, Elizabeth, N.J. 2 plates sweet apples for exhibition only.

Delaware State Board of Agriculture, Dover, Del. Exhibited apples, pears and peaches.

Your committee wish to recommend that fruit which is placed on exhibition for Wilder Medals should be forwarded for that purpose and should not be allowed first to compete in other exhibitions which may chance to be open at the same time and place.

Committee: F. M. Hexamer, N. F. Murray, E. S. Goff, W. J. Green, W. T. Macoun, John Craig.



FIG. 2175. A GLIMPSE OF THE COURT HOUSE, CAYUGA.

THE EVOLUTION OF A LOCAL HORTICULTURAL SOCIETY.

CAYUGA, although a very small town, has many natural attractions, a fertile soil, a picturesque landscape and is the county town of the County of Haldimand. For a long time the only public floral embellishments consisted in the wild flowers of the river islands, and the rank street growth of the sweet clover; people kept pigs and cattle pastured on the streets. Upon the engaging, however, of J. E. Skeele, as principal of the High School, it dated a new era. The school premises for the first time were really cleaned and tulip beds were set out. Numbers of the citizens began the systematic culture of flowers and a desire for improvement manifested itself. At this juncture Mr. Thos. Beall, your organizing director, called upon me. He arrived one day in December, 1900, about 6

p.m., and only stayed that evening, but his coming seemed providential. We were ready to do something, but did not



FIG. 2176. RT. REV. DEAN LAUSSIE, D. D., HIS HOME AND GARDEN.



FIG. 2177. RESIDENCE OF A. K. GOODMAN.

know what; his arrival was most opportune, but our hearts failed us at the idea of getting 50 members in Cayuga. However three of us, Mr. Skeele, our president, Mr. Morson, manager of the Bank of Commerce, our treasurer, and the writer as secretary, started on the tramp—after hours. At first people laughed at us but we soon had 78 members and then everyone said "I told you so." In the spring we were impatient to see the snow go, everybody cleaned up, bonfires were general, pigpens were abolished, the cattle shut up. The Cayuga Horticultural Society was on every tongue and lazy men apologized and said "If I'd a place of my own I'd go in for flowers too." As the season opened street trees and evergreens were planted, many new gardens were made. The county council was waited upon and gave a grant of \$50 for 1901 for flowers. Governor Murphy joined forces with us and with great taste and skill directed our local florist, Slocum, to the end that gardens in our Court House park grounds of 12 acres, of great natural beauty, excited the admiration of everybody. The public, the grand jury, the county council and the visiting justices of the Supreme Court, all spoke well of the work and praised the exquisite taste of the guiding hand and the beneficial and wholesome results attained. The town council, too, gave us \$20 with which three

handsome beds were made in the town park; these were even watered and cared for voluntarily by good citizens. Our government grant was \$60. A handsome cedar hedge was donated to the High School grounds and many took advantage of the opportunity of buying choice stock at wholesale rates. Our public meeting held in the Court House was attended by an immense number; Mr. Wm. Bacon, of Orillia, the government lecturer, was simply astounded to see the life and snap exhibited by a year-old society, the floral decorations, the orchestra and the intense interest and Mr. Bacon's well-known ability made this meeting very attractive. But we have just commenced and next year is already bright with promise. Our County Council in most eulogistic terms granted us \$50 again for flowers in 1902. Our membership list is growing steadily and we look forward to a year of great improvement.

The general outside opinion is that our society has already done a great deal of good



FIG. 2178. ASTERS.

to Cayuga. I feel sure the organization of a local Horticultural Society would prove of equal benefit to any other place and there are many places where weeds, laziness and a lack of flowers seem to be the noticeable features. The four cuts are, 1. A glimpse of the Court House with Mr. Murphy and children. 2. The Rt. Rev. Dean Laussie

D. D., his home and garden. 3. My house showing the southern terrace just opposite the Court House. 4. A bunch of Asters picked from one of my beds that contained at one time 5000 asters in bloom. These photos were taken by J. W. Sweatman, son of the Bishop of Toronto.

Cayuga, Ont.

A. K. GOODMAN.

OUR ANNUAL MEETING.

THE 42nd annual meeting of the Fruit Growers' Association of Ontario will be held in the City Council Chamber and the Grand Opera House, Cobourg, on Wednesday, Thursday and Friday, the 4th, 5th and 6th of December, 1901.

The day meetings will begin at 9 a. m., and the evening meetings at 7.45.

PROGRAMME.

TUESDAY EVENING.

Directors' meeting—As far as possible all business matters of the directorate will be disposed of at this meeting.

WEDNESDAY.

Morning—*Business and Legislation*; the fruit exhibit; appointment of committees; (1) nominations; (2) fruit exhibit; (3) resolutions; (4) correspondence.

Reports of standing committees—
New Fruits—Prof. Hutt, O. A. C., Guelph.
Codling Moth—Joseph Tweddle, Stoney Creek.

Industrial Fair—W. E. Wellington, Toronto.

Western Fair—J. S. Scarff, Woodstock.

Eastern Fair—R. B. Whyte, Ottawa.

American Pomological Society—G. C. Caston, T. H. Race and others.

Quebec Fruit Growers' Association—H. Jones, Maitland.

FRUIT PACKING, GRADING AND INSPECTION.

Afternoon—*Practical and Educational*.

Report of committee on Fruit packages—
E. D. Smith, Winona.

Fruit packages for fancy fruit (with samples)—Wm. Wilson, London.

Apple packing, illustrated—San. Nesbitt, Brighton.

Address—Prof. H. E. Van Deman, ex U. S. Pomologist, Washington, D. C.

Evening—Music and recitations by local talent.

Address of Welcome—the Mayor of Cobourg.

Annual address by the President, W. M. Orr, Fruitland.

Address—Mr. C. C. James, Toronto, Deputy Minister of Agriculture.

"The fruit trade in England"—Prof. J. W. Robertson, Ottawa.

"General phases of maritime fruit growing."—Rev. Father Burke, Alberton, P.E.I.

THURSDAY.

Morning—*Business and Legislation*.

Report of nominating committee.

Report of directors and executive committee.

Report of secretary-treasurer.

Report of finance committee.

Report of Auditors.

Report of transportation committee—W. H. Bunting, St. Catharines.

"Freight on fruits"—H. W. Dawson, Toronto.

"Organized effort for fruit exhibit at St. Louis"—H. Jones.

The Fruit Marks Act.

Report of inspectors—E. Lick, Oshawa, Alex. McNeill, Walkerville, and others.

Afternoon—*Practical*.

"Our Affiliated Horticultural Societies."

Reports of representatives—"What we have done and how we did it."

Reports of lecturers.

"Amateur rose growing"—John S. Jackson, Port Hope.

"Spraying"—J. E. Orr, Fruitland.

"Pruning"—W. N. Hutt, Southend.

Evening—Music and literary programme by local talent.

Question drawer opened and answered.

Introduction of visitors and representatives of sister societies.

Address—G. C. Creelman, Toronto.
"Horticultural Societies; their relation to the home, the school and the province."

Address by the Hon. John Dryden, Minister of Agriculture.

Illustrated address on the orchard—Prof. Waugh, Horticulturist Vermont Experiment Station, Burlington, Vt.

N.B.—*Headquarters will be at the Dunham House, Cobourg.*

FRIDAY.

Morning—*Reports of committees—*

Fruit exhibit, cold storage apples from Buffalo, resolutions, etc.

Address by Prof. Macoun, Central Experimental Farm, Ottawa.

Afternoon—*Unfinished business—*

Our Experiment Stations.

Profitable varieties of grapes—M. Pettit, Winona.

The best gooseberries—S. Spillett, Nantyr.

The new strawberries—Rev. E. B. Stevenson.

How to grow raspberries—A. M. Smith, St. Catharines.

Our best commercial apples—W. H. Dempsey, Trenton.

Cherries for Northern Ontario—G. C. Caston, Craighurst.

How to produce fine apples—H. Jones, Maitland.

Our export trade in fruit—E. D. Smith, Winona.

Topics suggested for Question Drawer—

The expensive tree protector.

The cherry aphid.

The torch and trap lantern in the orchard.

Perennial flowers.

Date of our annual meeting.

OUR FRUIT INSPECTORS are at work, and although only seven in number, they are making their presence felt in all the provinces. Several times, for example the Toronto and Hamilton markets have been surprised by them, and, while no actual convictions have been made, a wholesome dread of the penalty which they have the power to inflict has resulted in more honesty of packing and better satisfaction for the fruit buyer. On Tuesday, Oct. 15th, we were favored with a call from Mr. W. A. McKinnon, chief of this department, and Mr. Alex. McNeill, one of the inspectors. They reported that the educa-

tional feature of their work seemed more important than the prosecution for fraud, at least for the first season. Consequently Mr. McNeill is holding demonstration meetings with farmers, at which he is showing them how to properly pack their own fruit, and thus, combining together they can save to themselves the profits of the speculator. The inspectors at work are: Alex. McNeill, Walkerville, Elmer Lick, of Oshawa, E. H. Wartman, of Kingston, E. J. Carey, of Cobourg, J. F. Scriver, of Montreal, George Vroom, of Middleton, N.S., and Richard Burke, of Charlottetown, P.E.I.

OCEAN COLD STORAGE NOT YET A SUCCESS.

BARTLETTS EITHER COOKED OR FROZEN.

FRUIT growers generally will never enter with confidence upon the export of tender fruits, such as Bartlett pears and peaches, until the cold storage service on shipboard is more satisfactory, or else until the Government will guarantee us against loss in transport. We are willing to risk the markets, but it is provoking to have our fruits either frozen or cooked, and no redress.

A few of us at Grimsby, anxious that the experiments so well undertaken should be continued, forwarded at our own risk, to Glasgow from Montreal on the 12th of September per Donaldson line 1,120 cases of Bartlett pears, green and hard, and in a condition in which we believe they would carry on deck in the open air in safety. Our surprise was great to have a report from Thos. Russell, Glasgow, the consignee, dated the 28th September, to say that the whole shipment landed in "*in bad condition and over ripe*," and had to be sold at from 2s. to 5s. a case, and a good many cases were "worthless"; and that some of the lots will barely cover the freight. This is rather discouraging to private enterprise, for 10 shillings is not unusual for our half cases of pears in Glasgow when they are carried at a proper temperature.

While our shipment was kept at too high a temperature on shipboard, both while lying at Montreal and for the first three days out, when it was *at last* got down to 40°, we noticed that the first experimental shipment of Bartletts by the U. S. government was injured by too low a temperature, and some of the fruit frozen.

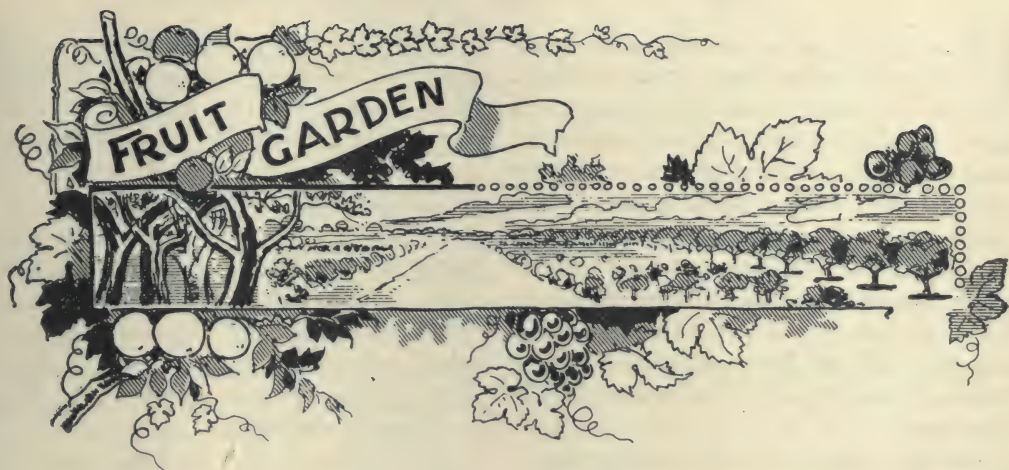
The following account is from the Fruitman's Guide of New York city :

The Guide's English mails this week brought it interesting information concerning the sale of the experimental shipment of American Bartletts sent over in September to London under the auspices of the United States Government. As told in the The Guide at the time the fruit was grown near Barker, Niagara Co., N. Y., and was shipped by F. M. Bradley, for himself and six others. It was picked on September 2nd, packed September 3rd, and placed in the refrigerator in New York on September 5th. It went by the Minneapolis, which sailed on September 7th, and was sold at Covent Garden by Garcia, Jacobs & Co. on September 18th, results in detail being as follows :

1	bbl. American Bartletts.....	38s.
1	bbl. American Bartletts.....	31s.
8	half-boxes American Bartletts.....	4s.
15	" " " ".....	6s.
120	" " " ".....	3s. 3d.
20	" " " ".....	3s. 4½d.
84	" " " ".....	4s. 9d.
36	" " " ".....	5s.
12	boxes American Bartletts.....	9s. 3d.
25	boxes American Bartletts.....	6s. 3d.

The two barrels brought an extraordinary high price, 25s. being a good price in the London market for this stock. Evidently the barrels contained fine fruit, which arrived in perfect condition, and the barrel which fetched 38s. or \$7.60 must have been remarkably fine indeed. But the half-boxes show a great slump, and prices were anything but good. Our correspondent informs us that this was due to the fact that the pears in the half-boxes arrived frozen, the chamber temperature on the voyage across having evidently been kept too low.

However, it is just to find out through the schooling of experience such points as this that the experiments are being made. The Government experts are making the shipments with this purpose well in view—to find out the exact temperatures best suited for the shipment of the different varieties of fruit. It is safe to say that profiting by experience, those in charge of the shipments will have no more Bartlett pears arriving frozen on the other side. Rome was not built in a day, and it will be some time yet before the experts get things down to such a fine point as to be able to gauge the proper temperature for various kinds of fruits with mathematical precision. But they are "getting there just the same," and the American exporter and the European receiver of fruits will yet arise to call the men responsible for this much needed display of activity on the part of our Government "blessed."



FALL TREATMENT OF PEAR BLIGHT.

IN those orchards where the blight has been carefully and persistently removed and destroyed most of the trees have been saved. In some instances the cutting was not severe enough to remove all the blight producing organisms, that is, the diseased branches were not cut far enough below the lowest discolored point on the bark to remove the organisms, and as a result the disease remains in the tree and continues its destructive work so long as soil and weather conditions are favorable.

At this season it will be observed that the blight is not spreading and the disease is not advancing even in the partially dead branches. It has been found however that the disease producing organisms, although inactive during the fall and winter, are not dead, that they are capable of living over the winter if the diseased branches have not been removed from the trees. As soon as the sap begins to flow in the spring these organisms again become active and it is from these so-called hold-over cases that the blight is spread. When the organisms become active in the spring they find their way

to the surface of the infested branches either through exuding of the sap or otherwise and are carried by the bees or wind to neighboring trees where they lodge and produce disease.

It is clear from these facts that have been determined by careful investigation that there is only one way in which to prevent an outbreak of this disease next season and that is by destroying all the organisms before the sap begins to flow in the spring. The only method by which this can be accomplished, so far as known at present, consists in cutting out and burning the affected branches. In many orchards where the blight was so destructive the past season it was found that little or no effect had been made to destroy this pest during the preceding season. While the blight was not so destructive generally in 1899, as in 1900, it was present in most orchards and in many isolated trees; hence where it was not cut out it accumulated and became more destructive during the past season.—*Small Fruit Grower.*

BEES AS BLIGHT DISTRIBUTORS.

I HAVE thoroughly worked out the question relative to bees carrying blight. The conclusion reached is that bees carry pear blight extensively, and, with other insects, are the principal or almost the only agency of distribution of the germs. The occurrence of the blight on the blossoms in great quantities and the great rapidity with which the disease spreads from flower to flower indicate a normal and very effective method of distribution. The germs were found growing freely in the nectar of the blossoms.

Bees were seen repeatedly visiting the infected flowers, and some were caught taking infected nectar, and by means of plant cultures the pear blight germs were isolated from their mouth parts. By covering parts of the trees with sacks of various kinds of material, including mosquito netting, and then artificially infecting certain flowers on the tree, the blight was observed to spread very freely over the uninfected and uncovered blossoms, but was entirely absent in the blossoms covered by mosquito netting.

Blossoms were infected and at once covered with sacks and the blight in such cases was retained in the infected blossoms. Pear blight germs died very soon after being dried up, and lived for only a brief period on exposure to weather conditions out of doors, hence they cannot live in dust and be blown around to any great extent by the wind. Pear blight virus, particularly that which occurs on the blossoms, is a very sticky substance, and is readily carried by insects, birds or other animals, but cannot be blown by the wind.

It may also be well to state that as a result of this serious charge against bees, I was led to carry on an extensive series of experiments in the pollination of pomaceous fruits, and as a result of these I found that bees are indispensable to the pollination and setting of most of our pomaceous fruits, hence they should not be destroyed, as some growers think. They simply carry the pear blight incidentally while performing an important and necessary function.—*American Agriculturist*.

FALL PLANTING TREES

ON the question of whether it is better to plant fruit trees in fall or spring Professor F. A. Waugh, of the Vermont Experiment Station, says that one time is just as good as another providing the soil is in good condition and the trees are all right.

There are some advantages in setting trees in the fall, the principal one being that there is commonly more time for it at that season. There is always a rush of work in the spring, but at this time of the year farm operations are less pressing. Sometimes also the trees can be had in better condition in the fall. Usually prices are slightly lower for nursery stock. Furthermore when fall planting is really successful the trees are apt

to do better than when spring planted. They become established to some extent during the winter, and are all ready to start with the first growing weather in spring.

The chief requirement of fall planting is good soil in a state of high cultivation. Raw, lumpy, soddy soil will not answer. Positions in which water stands will not do for fall planting. (In fact trees should never be set in such places.) Where the soil is not light and well drained it is liable to freeze and heave, thus doing much injury to young trees.

But if the soil is right, and the trees are right and the man is ready to plant, fall setting of fruit trees is nearly always advisable.

STORING CELERY FOR WINTER.

WHEN cold weather comes celery should be removed to the cellar. In case there is not room in the cellar let a space be cleared and levelled in the garden and boards set up about it. The space between the boards should be subdivided by other boards set two feet apart. The bunches should then be taken up with a spade, roots and all, and all the dirt allowed to remain that will cling to the roots. Set the plants close together in the space until they fill it compactly and snugly, then cover with boards and over that throw a pile of straw. Water occasionally, but not by sprinkling over the tops of the celery, as this will cause it to rot. Use a tin spout or iron pipe an inch in diameter. Set the lower end of the pipe among the roots, place a funnel into the other end and then pour the water into it. This gives abundant moisture to the roots and the tops are kept dry. When boxes of celery are exposed in the market for sale, it may be kept fresh and moist by laying wet gunny sack on the box. The plants absorb the water from the wet cloth and yet do not become wet enough to cause them to rot. It seems that very few dealers and grocers know of this simple plan to keep their celery attractive and crisp.

If the celery is taken into the cellar, build an inclosure as described for outdoors, deposit a layer of rich dirt within, set the plants out just as if they were outdoors and water occasionally as described above. Celery put away in this manner will last all winter and grow continually. It will be white and tender until late in spring, and even until early summer, and the last will be found to be sweet and crisp. A good plan in using celery for home consumption is to

break off a single stalk at a time. Thus the heart remains alive and new shoots will constantly appear through the winter. A space two yards square will be sufficient to supply a family with celery all winter if this plan is followed and care is used to prepare the plants for continued growth. These outshoots are the daintiest and crispest sort imaginable, and they will grow with remarkable rapidity.

In growing celery it is profitable to mulch between the rows with course barnyard manure. This is not so much for the purpose of securing the fertilizing material, as to secure a thick covering over the soil between the rows to prevent the escape of moisture. Try this method of mulching your celery rows, and do not be afraid of getting the manure too thick. Do not let it come in contact with the celery, but pack it in compactly all over the space between the rows.

Celery set out as late as the middle of August will grow to maturity before freezing weather. Frost does not injure celery, indeed it seems to enliven it and cause it to grow faster than before. It is suggested that unless the plants are unusually stocky when they are set out, they should be pinched off just above the heart. The leaves only should be taken off the young plants. This serves to concentrate the vigor of the plant to the roots and heart as well as causing the bunch to grow broader and thicker. Scores of gardeners have made fortunes cultivating celery for city markets, but methods involved in producing it on so large a scale have to do with special machinery and appliances provided for the purpose.—*American Agriculturist*.

PREPARATION OF GRAPE JUICE.

EACH year, as the grape season approaches, we are asked how to put up grape juice for family use. Several readers have given their methods, but it seems well to repeat former instructions. In proceeding, use only clean, well-ripened grapes. I prefer expressing the juice in an ordinary hand cider mill (same as making cider) by grinding the grapes. The advantage is you get the juice at once and that which is expressed by grinding is clear and retains so little foreign matter or pomace. It may, by careful straining through double thickness light flannel, be immediately bottled, while that obtained from pressing the skins, pulp, seeds, etc., will require, besides straining, a little time to precipitate a sediment resulting from pressing. I sometimes filter through a few inches of clean washed river or creek sand. The sooner, however, it can be bottled and corked the less fermentation and the more of the peculiar grape aroma may be retained. Whereas, if the grapes are crushed in a tub or barrel I find it difficult or impossible to express the juice until fermentation dissolves the pulp,

thereby losing much of the grape flavor, but the fermentation cuts no figure in the keeping qualities, as I sometimes, for variety, let some ferment to a certain flavor, when I heat and seal it with the assurance that when opened in the months, or years following, the same flavor will prevail. I use the ordinary wine and beer bottles—carefully wash and drain them, fill to within about three inches of the top. Set in ordinary wash boiler on the stove; put an inch of sand on the bottom or fit a thin board over the bottom to prevent the bottom of bottles overheating to break or give the juice a cooked flavor; fill the boiler with bottles as close as they will stand without crowding and fill the boiler with cold water within about four inches of the top of the bottles. Lay on the lid and start the fire. Bring the water slowly to a distinct simmer, but in no instance allow it to come to a boil, as this, too, will cook the juice. Have your corks steaming. I use a one-quart fruit can; fill half full of water and put in the corks, lay on the cap, set along the boiler to heat and steam while bottles are heating.—*Green's Fruit Grower.*

PEARS, says the Fruit Grower, have been a good crop in North Kent, England, this season. There is not, however, a very considerable area under this fruit, particularly of the large and heavy sorts. This seems to be an oversight in some respects, as the soil and climate are apparently suitable for the cultivation and successful ripening of such good kinds as Louise Bonne, Pitmas-ton Duchess, Williams and others. By far the largest number of trees consists of Hazels. Very large gatherings have been made of these small pears in places. Except when they are placed in a very exposed position, they stand well on the trees. As much as five and six bushels have been taken from individual trees, the gatherings from two trees in one instance working out at the total of 12½ bushels. The price

now being realized is from 3s. to 3s. 6d. per bushel. Evidently a long dry season is suitable for this fruit. Williams, in some instances, have returned 8s. per bushel.

With the close of the apple gathering now just at hand, the tendency of the market has much improved. This probably is due to the fact that the fruits remaining on the trees after the severe gales were limited in quantity; in fact, only those trees which stand in exceptionally sheltered positions escaped with any appreciable quantity of fruit left on them, the bulk of the crop being marketed as windfalls. Good apples have realized 5s. per bushel. Drops are still at a low figure, and some growers have yet a stock of them in their store rooms which they are marketing a few bushels at a time.



WINTER PROTECTION OF OUT-DOOR PLANTS.

THIS is a subject that is often a source of anxiety to those who have a collection of plants in their garden that are not entirely hardy in character, and that are unable to resist the vicissitudes of winter weather successfully, unless some protection other than that provided by nature is given them.

Our anxiety for the welfare of the tender occupants of the garden is very often an inducement to bestow too much care and attention in this matter of artificial winter protection.

A mistake also that often occurs in this respect is that of covering up and protecting the plants too early in the winter, before the growth has been sufficiently hardened to enable it to resist even the partial exclusion of air that of necessity takes place when any artificial covering is given to plants. This early covering of plants as mentioned, results at least in a decided weakening of the vitality of the plant, besides rendering it more liable to attacks of mildew and other diseases during the following season.

Roses often suffer in this way from being too heavily mulched and protected before the wood has been even fairly well ripened.

Where an earth mulch is applied by banking up the soil around the stem of the plant, it has of necessity to be done before severe frosts set in. The time for this operation, however, can often be extended well into December, by applying a mulching of straw manure or some similar material on the soil around the plants, so as to keep the early severe frosts from penetrating the soil. This mulch can be removed when there is a probability of severe weather setting in, when the earthing up process can be attended to finally.

When artificial protection is given plants during the winter, more especially roses, tender climbers and shrubs, it is necessary to take into consideration two very important points, so as to secure the best results possible. These points are to arrange the material used, so that air is not entirely excluded from the growth; and due regard given as well, so that moisture from rain, melting snow, etc., will be prevented from penetrating the protective material used. Placing dry leaves around the growth and retaining these in position with brush wood until a barrel can be placed over them, is a good way to protect many of the dwarfers



FIG. 2179. CLEMATIS JACKMANII ON HOUSE OF MR. JAS. CRAIG, KINGSTON.

kinds of shrubs, roses, etc. The barrel should, before being placed over the plants, have several one-inch holes bored in the sides at irregular distances from the top varying from six to eight inches apart. No holes should be bored below the largest part of the barrel except a few on the sides and very near to the bottom of the barrel. By boring the holes in the manner mentioned very little moisture will find its way inside the barrel. The top or lid of the barrel must of course be removed, but the bottom should be left intact. When the barrel is turned bottom up over the inner protection of leaves before mentioned, not only will all moisture be excluded, but the holes bored in the sides will allow of a circulation of air sufficient to prevent the leaves from becoming heated, and still give protection sufficient for the well-being of the plant. Objection may be taken to barrels

being used for protective purposes on account of their unsightliness. This objection can be remedied by covering the barrels with branches of evergreens.

Another effective method of covering the kind of plants before mentioned is to secure some long straw, long sedge grass, or similar material, lay it out as straight as possible in small quantities, and then cover the trees or shrubs with about an inch or two in thickness of the material. Care must be taken, however, to commence laying on the covering from the bottom so that each successive layer overlays a few inches the layer below it. The top of this thatch or covering should be tied closely with twine, and the twine carried around the covering down to the ground so as to keep the successive layers in place.

Where a very slight protection is needed the matting used to cover tea chests, makes

an ideal protection for plants, as it wards off a great deal of moisture, and is also sufficiently open to admit air to the plant, whilst it effectually excludes the sun's rays, the latter being an element of danger to plants in winter, especially when it induces successive thawing out in the day-time, and as a natural sequence successive freezing at night. This latter condition of successive thawing and freezing by the heat of the sun in the day time and frost at night is one of great danger to plant life of any kind during the winter, and one that should be avoided if possible with all plants and shrubs of a tender nature. Protecting the plants however with a covering of some thick close material that effectually excludes the air, and at the same time absorbs and retains a large amount of moisture around and about the growth of the plant is a serious mistake. I have known large plants of the comparatively tender English Ivy kept in good condition out-of-doors for several successive seasons by a judicious use of long straw and the grass matting before mentioned. For the tender varieties of roses, clematis, small and recently planted altheas, Japanese spireas, etc., the covering mentioned is of great value as a winter protection. But where a thick close material has been used for this purpose the result as a rule has been most disastrous to the plants so protected. The branches of plants to be protected should first of all be tied up together rather loosely before being covered up.

In the case of low growing plants, such as gaillardias, campanulas, pæonies, etc., and many other similar border plants that may require some protection, a much simpler method can be adopted than for shrubs and taller growing plants. In protecting these lower growing plants, one cannot do better than to follow as nearly as possible the condition found, where plants are growing in their native haunts, or in positions similar to that in which they are found when growing

naturally. How often perhaps have many of our readers been surprised as I have been, at finding may be only a single stray specimen of some choice tender plant looking fresh and bright in the spring time, that has had no covering except a few leaves or the protection of a covering of foliage of some other near-by plant; whilst perhaps a whole patch or row of plants of the same kind that were entirely covered over and protected with too great care, presented only a mass of rotten foliage and perhaps dead crowns and roots. Covering up the plants too early in the winter and smothering them with a close heavy covering of manure is too often the cause of failure in wintering over half-hardy border plants.

Partially covering the plants with trimmings of fruit trees or of currant or raspberry bushes first, and then shaking a light covering of dry leaves in and about the brush-wood, I have found to be a most simple and effectual covering for semi-hardy border plants. The covering can be increased by the addition of a little long strawy manure placed over the brush-wood so as to form a rough thatch to pitch of the moisture. A wide board supported an inch or two above the tops of the plants in addition to the coverings mentioned, is also of great value for winter protection.


Good surface and sub-soil drainage are also great factors in growing tender border perennials and plants successfully. Without good drainage even the most careful and skilful methods of protecting plants in winter will be found to be unsuccessful and at least comparatively worthless.

In short to be successful in giving winter protection to plants, similar to those mentioned, cover them as lightly as possible to be effective, so that the rays of the sun, and as much moisture as possible is excluded, whilst sufficient air is still given the plant to sustain life.

Hamilton.

W. HUNT.

HOW TO GROW HOUSE PLANTS SUCCESSFULLY.

FTER a long experience with a large variety of plants I wish it might be possible for me to convince people who are thoroughly discouraged with trying to grow them, that if they will only follow a few simple rules, they may enjoy perfectly healthy and beautiful specimens in their homes under almost all conditions.

Do not think for a moment that you can take any plant which you may have, or buy, and put it just where you most desire to have it for effect, without regard to what that particular plant needs. Some cannot thrive without a large amount of sun, while others require very little. I believe every variety needs direct light and a little sun for perfect health, and if they do not get it, death is sure to come sooner or later.

At different seasons of the year the same plants need to be changed from perhaps an eastern to a southern exposure, or vice versa. Begonias and ferns are especially happy in a south window until about February 1st, when the sun becomes so powerful that the curtain must be drawn from ten in the morning until about three in the afternoon or they will be seriously burned.

Every day give them plenty of fresh air, always open the windows and doors for a few moments, even in the coldest weather, but do not have the draught come directly across your plants. Try to follow nature as possible, remembering that she never makes mistakes in caring for her children.

Great care should be used in watering. I am sure hundreds of noble healthy specimens are ruined by continued daily watering. Always have the water luke warm for the reason that a large number of our house plants come from the tropics. Give them a very generous soaking, not all at once, but wait five minutes between waterings and you will be surprised to see how much some of the plants will take up. I always water

twice, and sometimes thrice, until the saucers are full, then give them a grand rest for three or four days, until the surface earth is dry to touch. My heart has ached so often when shown choice plants which were truly dying of consumption from daily drinks of ice cold water. You will be greatly pleased to find how clean your pots will keep when you find out the secret of correct watering.

Watch your plants and if they do not look quite right, just carefully turn the pot down, striking the rim against some object by a quick rap, holding the plant and earth in the other hand, and you may be greatly surprised at what you find. Often the writer has found worms and insects sucking the life of the plant day by day. Never allow the pots to stand in the sun, without being protected either by cardboard or by sinking them in a box of sand. Nature is never so unkind as to submit roots to a baking process.

Do not think that, because you purchased your plants at a florists, they must be all right, for many times I have found sad conditions, which in a few months would result in the ruin of the most healthy plant.

It is much cheaper in the end, when repotting in the fall, to buy of a florist a bushel of prepared loam, at fifty cents, than to use any common garden soil, for with such preparation you will have no use for tonics of any sort during the winter.

Do not forget to always give good drainage, even in a small four inch pot, using small pieces of crockery, stones or charcoal; the latter is most excellent, serving also as a dressing.

Many people will tell you that it is impossible to have healthy plants if your house is heated by a furnace, or lighted by gas, but I have found, after using both for many years, that it is not the fact. I believe if

your gas fixtures and furnace are perfectly constructed, as they should be for the good health of your family, your plants will not be troubled in the least by their use. Try to keep the temperature as even as possible, about 70 during the day and not lower than 50 or 60 at night.


We often hear it said that plants, espec-

ially a large number, are unhealthful in the home, but do not be at all worried, for physicans of both schools are not of that opinion.

Try, my friends, this coming winter, to grow plants as nature intended and you will be surprised and charmed by the results.

—Ex.

GREENHOUSE AND WINDOW.

HRYSANTHEMUMS should now be in their full glory. The later varieties may still require some attention in the matter of disbudding. Possibly the black aphid may cause trouble yet, if so syringe the plants frequently with strong tobacco water, or a weak solution of kerosene. The latter can be made by mixing about a tablespoonful of kerosene in a pint of water, or in the same proportion if a larger quantity is needed, but the tobacco water is the safest and most effective remedy.

Syringe carnation plants and roses at least once every two days with clear water. Tepid water about 45° to 50° is safest to use.

Fuchsias will also require frequent syringing with clear water, especially on the underneath side of the foliage.

Freesias will require plenty of water. Early struck geranium cuttings should be potted into 2½ inch pots.

Give Genistas and Azaleas plenty of water at the roots. The Azaleas should be syringed daily.

Canna and Dahlia roots should be stored away in their winter quarters where the frost cannot touch them. Underneath the benches in the greenhouse, away from the hot water or steam pipes is the best place for Cannas in the winter. Dahlia roots can be stored in the same way, but a dry cellar with a temperature of about 45° will suit Dahlias the best. Place the roots in boxes and cover them with sand or earth.

Palms, Ficus, Dracenas (Cordylines), etc., should have their foliage sponged once every week or two. If they show signs of scale

on the foliage use a weak solution of whale oil soap and water, or soapy water, to wash them with.

Show and fancy pelargoniums and scented geraniums are very liable to attacks of green fly or aphid. Frequent fumigating with tobacco, or syringing with tobacco water, will rid the plants of these pests.

Cuttings of *Glechoma variegata*, *Lobelia*, *Vinca Japonica*, *O. Crassifolia*, and other varieties suitable for window boxes or hanging baskets should be taken. These are often left until it is too late to secure cuttings that will give good large plants to use in early summer.

The last batch of winter and spring flowering bulbs should be potted, and pots of these for successive flowering brought in for the window or conservatory, from the cellar or frames.

Gloxinia, tuberous begonia, and fancy *Caladium* bulbs should be kept quite dry and stored away in the pots, or the bulbs taken out, packed in charcoal or dry soil, and placed in a cool temperature not lower than 45°.

Easter lilies are very subject to aphid or green fly. Examine the tips of the growth frequently and use a little dry tobacco dust or tobacco water as a preventive or remedy for these pests, as they are hard to eradicate, if they once get possession of lilies and similar plants.

Water all plants early in the day, and retain as moist an atmosphere as possible where the plants are growing.

Hamilton.

W. HUNT.

HOYA CARNOSA (WAXPLANT).



FIG. 2180. HOYA CARNOSA IN GREENHOUSE.

THIS well known greenhouse climber is a native of far eastern lands, having been brought from Queensland, Australia, about a century ago. There are about fifty species of the Hoya,—all natives of eastern countries,—few of which however, with the exception of *Hoya carnosa* and the variegated type (*Hoya carnosa variegata*) have found much favor with floriculturists. The generic name “Hoya” was given this plant to do honor to the name of Thomas Hoy, who many years ago had charge of the beautiful gardens of the Duke of Northumberland at Sion House.

Although the *Hoya carnosa* cannot be considered an ideal house plant, it will, under favorable conditions and culture, often produce quite a number of its beautiful wax-like sweetly perfumed umbels of flowers.

The plant, as shown in the photo, is growing in a bushel pot, and has not been re-potted for four or five years. A compost of

equal parts of enriched loamy potting soil, leaf mould and sand, suits the Hoyas very well. Thoroughly good drainage is a very essential feature for the successful culture and subsequent flowering of this plant. To secure this, fully an inch of broken pots or similar material should be placed in the bottom of the pot when re-potting the plants. When once the plants are well established frequent re-potting is not necessary, once in every two or three years being sufficient if the drainage is perfect. A top dressing every spring composed of three parts of dry pulverized cow manure to one of loamy potting soil makes a good top dressing for these plants when they are not re-potted annually.

One feature in favor of the Hoya as compared with many other climbers is its freedom from the attacks of insect pests, scale and mealy bug being about the only pests that give any trouble in the culture of the Hoya. The mealy bug is the most troublesome, and is hard to eradicate, if it once gets possession of its closely packed umbels of flowers. Frequent syringing, or sponging of the leaves with a weak solution of whale oil soap and water will prevent the appearance of these pests.

The variegated type of this plant (*Hoya carnosa variegata*) makes a nice addition to a collection of window or greenhouse plants, its fleshy, silvery margined leaves, giving it an additional attraction as a window plant. Both the variegated and the plain type of the Hoya require about the same culture and treatment. To flower them successfully the plants must be treated liberally, so as to produce as much young growth as possible early in spring. This young growth will usually produce in July or August a wealth of bloom as seen in the photograph.

Hamilton.

W. HUNT.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

ANNUAL MEETING.—Notice the change in date: the Cobourg meeting will begin Wednesday, December 4th, and continue three days.

PROF. VAN DEMAN, ex-U. S. pomologist, will be with us at Cobourg and will contribute largely to the interest and success of our meeting.

SEEDLING PEARS.—Mr. E. C. Bevan, Newcastle, Ont. sends in four specimens of a very fine pear, which he says are seedlings. They are uncommonly large, and the flesh is fine and buttery.

APPLE BOXES.—The regulation size as used in New York shipments is in inches inside measure, $9\frac{3}{4}$ high, $10\frac{3}{4}$ wide and $20\frac{3}{4}$ long. Our own box is $10\frac{1}{2} \times 11\frac{1}{2} \times 23$ outside measure, which is essentially the same.

BETTER RESULTS.—The shipment of fall pears sent forward by the Grimsby growers on the steamer Kastalia has netted them much more satisfactory returns than did the Bartlett's. The average net returns is 92 cents per half bushel case.

APPLE SCAB.—Professor T. J. Burrill, of the Department of Agriculture of the University of Illinois, has announced that the parasitic fungus, usually called apple-scab, does not winter as supposed on the twigs of the tree, and therefore cannot be killed by spraying before the buds open. This is deemed a very important matter in practical orchard management for success hinges upon its destruction and dependent on a knowledge of its life history. For best results the first application of the fungicide (usually Bordeaux mixture) should be made just after the leaf buds open.

MR. GEORGE C. BRADY of Detroit, a member of our Association, who is well known in American society, called at our office in October, and we gave him a carriage drive among our orchards. He was delighted with our country.

PROF. WAUGH, author of *Plum Culture* and other excellent works for fruit growers, has promised to be with us at Cobourg and give an address, illustrated with a stereopticon. Mr. Waugh is counted the life of the convention wherever he goes.

THE KIEFFER PEAR is quoted at 13s. to 15s. sterling for barrels, with half boxes at 3s. in the Liverpool market. Not a high price, indeed only about the price of good stock in ordinary seasons, but of course it is every cent that such a pear is worth, and perhaps a good deal more.

COLORING PLATES.—Our readers will be pleased to know that we are arranging to use an occasional colored plate as a frontispiece of this journal. These are very expensive, one plate costing about \$50 for each issue. The first one will appear in the number for January 1902, and will represent the Windsor cherry.

THE WELLINGTON.—A new seedling peach apparently of considerable merit, has sprung up in Toronto, where we would little expect such a tender fruit to originate. It is a free stone, of yellow flesh, somewhat resembling a Longhurst, but much larger in size. The tree has been fruiting for years in Toronto, and shows great hardiness, never having been killed back in the slightest degree.

A MONUMENT for the original Wealthy apple tree is proposed by Mr. Jacob W. Manning, of Massachusetts. This has been done for the Baldwin apple at Wilmington, Mass. A granite pillar has been erected

near the site of the original tree, and on its top an apple as large as a peck measure is carved. The Baldwin is named after Col. Baldwin, an eminent civil engineer, who discovered the seedling tree in the year 1790.

THE YORK IMPERIAL APPLE, according to a writer in the R.N.Y., varies greatly both in eating and keeping qualities according to the section in which it is grown. It is not good for any purpose, in fall or winter, but if well stored it is good for all purposes in spring. It will stand up longer and bear more handling than any of the finer varieties, and coming when all finer varieties are out of the market, it sells well.

FORMULA FOR OUTSIDE PAINT.—This proves very satisfactory after five years' application, is as bright as when first laid, and appears to stand the weather well. Take 1 gal. linseed oil, 10 lbs. dry zinc paint and 10 lbs. whiting and reduce to a paste; dissolve 1 lb. potash; reduce with skim milk thin enough to spread as freely as oil paint. Ground zinc may be used, but does not require so much oil. I was a practical house painter for more than twenty-five years, using French zinc almost entirely for outside work, and am surprised at the result of the above. I shall try it on my outbuildings. [G. E. Chadbourne.]

PEAR BLIGHT AND BEES.—A committee of fruit-growers, Missouri, have reported against bees as spreading this disease of the pear tree as follows:—

"First.—The pear blight is not in the least abating, but it seems to be increasing. There is no pear orchard in the county free from the disease, and many orchards have the appearance of having been burned over.

"Second.—No remedy has been discovered that will check the disease.

"Third.—No change has been produced in the minds of your committeemen in relation to the original cause of the rapid spread of

the disease, that the bees are the principal agents in the spread in the flowering period of the pear trees.

"Fourth.—We believe the only remedy is the removal of the bees, to at least 5 miles from the fruit districts, otherwise the pear industry will soon be a thing of the past in this county.

"Fifth.—We, your committee, would ask the Board of Supervisors to give the fruit growers any aid in investigating the subject of pear blight or the removal of the same, for which we believe the bees are largely responsible, to do the same."

PRINCE EDWARD ISLAND, Mr. McKinnon says, is worthy of more attention from intending colonists than it has hitherto received. Only recently, it appears, has she awakened to her possibilities for the production of dairy products, oats, sheep, potatoes, apples, etc., and the province well deserves the appellation given it "The Million Acre Farm," or "The Garden of the Gulf." Mr. McNeill added, for both these gentlemen have just returned from a visit there, "I never saw strawberries anywhere equal to those I saw in Prince Edward Island, near Georgetown. They seem to have exactly the right combination of light soil and abundance of moisture for the best success.

EXPERIMENTAL SHIPMENTS of pears are still being continued from Grimsby, at the risk of the shippers, as the Dominion government has dropped the matter, without as yet achieving complete success. The steamer Lakonia, leaving Montreal Sept. 12, took 1120 cases of Bartletts; the Marina on the 19th, 560 cases of Bartletts, and the Kastalia of Oct. 3rd, cases of various kinds. These pears were green and hard on leaving Montreal, and the same stock kept in Grimsby cold storage until after the date of sale, were still firm; but advices from Glas-

gow just received (Oct. 7) state that the Bartletts forwarded by the Lakonia arrived in a very over-ripe condition. Evidently the cold storage on the steamships is still unreliable.

GOOD RESULTS OF FRUIT INSPECTION.—

The following circular, addressed by Mr. Eben James, of Toronto, to his foremen packers, and to apple dealers, shows that the results are proving the wisdom of the Act. He says:—

Please take notice the government has appointed inspectors at points of export and throughout Ontario.

The law holds the packer responsible for the quality of the contents of the barrels. There is nothing to be feared from it if common sense is used in packing and proper precaution taken in observing the following rules without deviation.

Foremen packers should handle every basket put in barrels, observing that the pressman knows his business, and by careful explanations to sorters work can be made easy and proper results insured.

BRANDING.

The grade of every barrel must be marked on it at the time of packing either by a brand or written legibly in pencil so that should apples not be branded until arriving at station the man branding cannot make a mistake, and will run no risk of branding No. 2 wrongly as No. 1.

The name of every boss packer must in all cases be written on every barrel in pencil.

Brand carefully and neatly; above all see that proper name of fruit is put on barrel; if in doubt put "Unknown", using best judgment.

GRADING.

The size for No. 1 must not be smaller than 2½ inches unless Romanite, Russett, Winesap or Jonathan and kindred varieties which must not be less than 2½ inches in diameter.

No. 2.—It is quite lawful to pack second grade, however pack no apples with a wormhole in the side. A wormhole in the blow, if the apple is of good shape, size and color, can be accepted as No. 2.

FOUR DISTINCT CLASSES OF APPLES WHICH ARE CULLS AND MAY NOT BE CLASSED AS SECONDS.

1. Wormy apples other than in the blow end.
2. A badly shaped or warped apple of undersize.
4. A badly scabbed apple (not the wart scab).
4. Small apples no matter how perfect. Under 2 inches for Romanite, Russett, Winesap, Jonathan, and kindred varieties, and under 2½ inches of other standard varieties such as Spies, Greenings, etc.

In all cases packers must show common sense in facing seconds; this does not mean putting the worst on the face, but make the face appear a fair representation of the contents of the barrel.

Note thoroughly our instructions "How to pack apples for export." Pay attention to under or over pressing. Above all pack well.

Ask your principal for instructions as to price to be paid for seconds where only firsts have been purchased. It is not compulsory to pack a second grade but a season like this it may pay if a satisfactory price can be arranged between grower and purchaser.

Show your best judgment in all things.

DISPUTES.

In case of disputes with grower have a copy of "Fruit Packing Act" at all times and if he will not let you pack accordingly notify your principal.

The Apple Market.

Canadian growers who are fortunate enough to have a crop of apples are quite in fortune this season, and need not trouble to export them, for the buyers will take them at their doors at \$3.00 and \$4.00 a barrel according to The Guide.

W. N. White, who has just returned from a trip through the Canadian apple sections, reports things "on the jump" there. Ontario, he figures, will turn out from 200,000 to 250,000 barrels. By no means all of this crop will go to Great Britain, as many of the apples—particularly the Northern Spys—have been bought by American operators to go into cold store. In fact nearly all the crop is already bought up, the representatives of some Liverpool houses and such Canadian firms as Hart & Tuckwell, John Barry & Sons and the Peterson Bros. being particularly active. "Bidding is very active," said Mr. White, "and prices high. For fruit on the trees \$3.00 is an average price and I saw one orchard of Nonpareils sold for \$3.75. Nova Scotia, which will not exceed 250,000 barrels, is also a scene of great activity."

Mr. White predicts that America's total export of apples to Europe this season—outside of box apples from Oregon and California—will range between 550,000 and 600,000 barrels and will in no case, however high prices go on the other side, exceed the latter figure, so small is our exportable surplus this season. The demand from Europe should be very keen, as not only is England short of fruit, but so too are

Germany and Holland. The latter country is usually a large exporter of apples to England, but mail advices this week say that her crop is so short and her domestic market so high that she will have nothing to ship to England. Altogether it looks as if The Guide's prediction that before long "the fancy American apple would be at a record breaking premium in the great marts of London, Liverpool, Glasgow and Hamburg and so yet bring a chance this season for all hands to make some money in the apple export business," would come true in every particular.

"The remarkable shortage in apples continues," says the American Agriculturist, "the chief topic in the fruit trade, advises reaching the American Agriculturist every day show further intensification of the heavy losses. President Cupp, of the Mississippi Valley Apple-Growers' Association writes us under date of Oct. 1 that 'now, at time of picking, prospects are for only 20 per cent. of a crop, and poor at that.' One of the largest commercial orchards in Nebraska shows up not more than 4 per cent. of a crop, others in that state somewhat better. Conditions in Michigan and eastward are much the same. The western half of New York has been further damaged by heavy wind storms. The crop in Ontario is probably the smallest on record. General shortages are the rule in Pennsylvania and New England. Connecticut farmers are now getting \$4 per barrel for choice fruit."

Liverpool, Oct. 16th.

Messrs. Woodall cable—"Fair demand. Nova Scotians 16s. to 19s. 6d.; others 13s. to 19s. No Canadians selling to-day.

Messrs. Simons, Shuttleworth & Co., Liverpool, cable the apple market as follows: "Sound parcels of apples are in strong demand, and meet with a ready sale at our quotations. Receipts as a rule are landing in bad order. The following quotations are

for sound fruit: Blenheim Pippins 20s. and Cranberry Pippins, Baldwins, Ben Davis 18s. to 20s.; Kings, 24s. to 27s.; Spys, Golden Russets, 16s. to 18s.; Snows (sweat spotted), 10s. to 13s.; Bellflowers, 12s. to 15s.; Talman Sweets, 13s. to 16s. Only choicest parcels made top figures. Wasty fruit rules from 3s. to 4s. less than the lowest quotations for sound fruit.

Messrs. Simons, Shuttleworth & Co. Liverpool, cable today that there is no change of moment to report in prices. The market retains a strong tone under light supplies, and an active market is anticipated for good apples.

Messrs Simons, Jacobs Co., Glasgow, cable their market as follows:— Kings, 22/ to 24/, Cranberry Pippins, 19/ to 21/, 20 oz. Pippins, 18/ to 20/, Gravensteins, Spitz, Seeks, Canada Reds, 16/ to 18/, Colverts, 15/ to 17/, Ribstons, 14/ to 16/. Lower grades and conditions ruled from 2/ to 3/ below the above quotations for sound fruit.

Mr. Thos. Dennis, who has travelled through the west to the Pacific Coast reported to the Fruit Trade Journal as follows:—

"We have now ten cars of California apples between the Coast and London. I believe that more apples from the Coast will go to London this season than ever before. Newtowns of course are shipped almost exclusively, and these are pretty well in the hands of a few large operators.

"Big prices are ruling in the West, so big that we must make good figures on the other side in order to induce consignments. But in view of the fact that the Canadian crop, according to the latest reports, is much shorter than previously calculated, I can see no reason why holders of Pacific Coast and Western apples should doubt that our market can return good profits on their investment.

"It may be a matter of interest for shippers to know that of the first cargo of Nova Scotia fruit consigned to London, we had consigned to our care about 1,100 barrels, of which the No. 1 fruit realized 18s to 20s, a figure which left a considerable margin for the grower.

"I consider prospects on our side very favorable, and have no hesitation in confirming this opinion, as expressed in our recent circular. Our country is certainly dependent upon the United States and Canada for apples this year.

"Our house is selling in London to-day a car of

California White Pippins, and I am now awaiting cable advices of the result."

The cable which Mr. Dennis received late yesterday afternoon gave great news of this sale. The apples averaged 9s. 6d. per box, or \$2.40 in United States money, which is equal to \$1.40 net to the local growers. This, it will be seen, is a most satisfactory result for the California growers.

The American Agriculturist, commenting on the apple situation in the United States, says that a general shortage is practically everywhere apparent, and the average yield must be far less than an average. A Western New York operator tells the Agriculturist that prices in his section are \$2.50 to \$3 per barrel and upwards. Country Gentleman reports that Coombs & Co. of Kansas City have refused \$50,000 for the crop of their 1,800-acre apple orchard. The crop is figured at 32,000 barrels, and the growers believe that they have \$100,000 worth of apples on the trees. They are, therefore, not selling their crop, but are buying from others to add to it.

The Agriculturist, in speaking of the general apple situation, says that Germany has very few good eating apples, Italy a very short crop, France hardly any, and England only about one-third. Speaking about market prospects in Europe, the Agriculturist says there is a good market in Germany for Baldwins and York Imperials at \$4 80. W. F. Freeman, representing European houses, is quoted as saying the United Kingdom alone can take 2,000,000 barrels, provided packing and quality are right, and it is reported that Belgium and the north of Europe generally also offer good markets for American apples.

In the United States, the Agriculturist adds, the demand for choice hand-picked apples continues good and prices at leading markets rule strong. Highly colored fruits attracts most attention, as is almost always the case. In Missouri and Kansas some contracts were being made last week on the ba is of \$1.50 to \$2 per barrel, but in Albion, N. Y., fine winter apples were selling at \$3.25 to \$3.75 per barrel, just as they come from the trees. At New York choice varieties continued firm, with Alexander \$3 to \$4 per barrel, Jonathan \$3 to \$4, King \$3 to \$3.50, Greening \$2.50 to \$3, and Gravenstein \$3 to \$3.50. Pears were \$2 to \$4.50 per barrel. Choice to fancy evaporated apples were 8½ to 9½c and common to prime 5 to 8½c. Dried were 4½ to 5½c.

FLOWERS AND FERNS IN THEIR HAUNTS, by Mabel Osgoode Wright, author of Birdcraft, Citizen Birds, etc., with illustrations from photographs, New York, McMillan & Co., 66 Fifth ave., 1901. This is the most delightful book imaginable, not only from a literary and scientific view point, but also from that of the nature lover, or even the ordinary garden amateur. The illustrations are unique, artistic and wholly original in the make up, and the text itself is such delightful reading that when you begin reading it is as if you were reading a sprightly novel, and you cannot soon put down the book. No one will regret investing \$1.50 in a book of such excellence.

QUESTION DRAWER.

(111)

1254. SIR,—Will you kindly inform from whom I may obtain a small Grape Press? I have been unable to see any "ads" in the Horticulturist anent such an article, yours truly,
Bridgeburg Ont.

O. F. WILKINS.

Would dealers please respond.

The Three in One Apple.

1255. SIR,—In reply to your letter I would say that I have been in the fruit business for fifty years, and in this case, instead of grafting to procure the apple (Thompson's Seedling) I took two buds with some bark and a little wood. I split each bud in two and took half of each bud, and united them to make one complete bud. I then raised the bark of a third tree and placed the bud in. I was careful to see that the bud grew as one. Hence this new apple, which I claim is a perfect three in one (Duchess, Kentish Fillbasket and McIntosh Red).

Uxbridge.

ALEXANDER THOMPSON.

We have never heard of varieties mixing in such a way. One or other bud would produce the apple, or else one half the apple would be one variety and one the other; they would not hybridise in such a manner.

The apple is Kentish Fillbasket.

Growing Sweet Potatoes.

1256. SIR,—My next door neighbor has laid in a stock of sweet potatoes with a view to plant and grow a crop next year, in place of the other kinds. And he being a member of the Kincardine Horticultural Society urges me to request you to get some one to tell him in the Canadian Horticulturist, how to proceed from beginning to the end. Will you oblige him?

JOSEPH BARKER.

The sweet potatoes are usually started in a hot bed, covered with a few inches of soil, when the buds will soon start and root, throwing up shoots. These are removed when they are about 8 inches long and planted out. The larger potatoes will need to be split lengthwise, and laid flatwise down in the bed. In Ontario it would be early enough to start the beds about the middle of April, and the plants would be ready for setting from the first to the middle of June.

Any soil but a heavy one, will do, even poor light sand, if judiciously manured.

The Keiffer.

1257. SIR.—Knowing that you have had considerable experience in the line of pears have concluded to write you in regard to the idea of planting 1500 Keiffer trees upon ground that I have tested with this pear. Would you be kind enough to let me know if you think the transaction would prove profitable.

Leamington.

W. L. CLARK.

The Keiffer pear tree is a prodigious bearer, unequaled in this respect by any variety in existence; on favorable soil, with proper treatment no pear equals it in beauty during the month of October; and for distant shipments it will stand up a long time without cold storage. If the quality were even fair, its other points of excellence would make it the most profitable of all commercial varieties, but the quality is "poor," and often even "very poor," so that no one will purchase it a second time for his table. Those, who first planted this pear, have already made some money out of it, but every year its value declines. Last year we purchased 500 baskets at from 15 to 25 cents, and in many places they were sold at 10 cents a basket.

They are really of little use except for the canning factory, and we would advise no man to plant 1500 trees of them.

Boxes or Barrels.

1258. SIR.—In the annual report of the Fruit Growers' Association of Ontario, I notice an article written by you re shipping choice fruit in bushel boxes to England.

I have since been trying to find out how the fruit so packed carried as regards bruising, etc., and from what I can gather on the subject the complaint is that the apples bruise worse. Could you inform me how these boxes are made of what material and whether they have a partition or not. Do you use excelsior and paper? I have some very choice Blenheims which I propose sending in boxes. Would you advise sending No. 1 and No. 1 extras, or only extras? Our next boat sails on

the 9th October, so if you could reply by return post you would greatly oblige.

Wolfville, N. S.

J. D. SHERWOOD.

Our experience is that apples packed in boxes carry quite as free from bruising as when packed in barrels; indeed when the barrel head is pressed home with a screw press, we often find that every apple in the barrel is bruised. But whether we pack in box or barrel there should always be a cushion used at each end to act as a pad and prevent direct pressure. A paper cushion has been invented for barrels, and for boxes we find excelsior or wood shavings a capital cushion for top and bottom. All this takes time and trouble from start to finish if we would make money out of our produce. The boxes are made at a box factory of $\frac{3}{4}$ inch ends and half inch sides, and need no partition, unless thinner sides are used.

Your Blenheims should pay you well if carefully put up in bushel boxes a season like this.

The Tent Caterpillar.

1259. SIR,—The Order-in-Council of 25th April last, pursuant to the provisions of "The Noxious Insects Act" (63 Vic. G. 47) mentions the "Expansive Tree Protector" as one of the bands which may be used for destroying the codling moth. I have been instructed by our directors to ascertain from you where this protector can be purchased and price and what is your opinion of it as compared to the other devices.

Our directors also express surprise that the above Order-in-Council makes no provision for the destruction of the tent caterpillar, which in our opinion is more destructive and uncontrollable than the codling moth, inasmuch as a man may keep his own orchard free from the former yet have it infected from his neighbor's which, is uncared for, while on the other hand the female codling moth, being unable to travel, can only injure the orchard in which she happens to be, so that, if a man keeps his orchard free from them, it makes no difference to him what his neighbour does.

As a society we have during the past summer taken active measures for the destruction of the tent caterpillar, but feel that our efforts are very much in vain when we have no legal enactments to back us up and compel people to so keep their orchards that their neighbors will not suffer pecuniary loss from their laziness.

I would also like to know how poison ivy can be destroyed otherwise than by pulling it up and

if it is infectious at all seasons of the year or only at times.

GORDON J. SMITH,

Sec'y Paris Horticultural Society.

Mr. W. E. Wellington, Toronto, is president of the company introducing this tree protector, and will give our correspondent full information.

Can any one give any other method of destroying poison ivy except by digging it out by the roots?

Summer Pruning the Peach.

1260. SIR,—Enclosed you should find \$1 for my subscription to the Horticulturist. I appreciate it very much and find many helpful ideas in it. I have, however, failed to find in it what I want to know about summer pruning. Last spring I set out 500 peach trees, near Boston, on a worn out sandy farm. The trees were a long time on the way from the nursery and arrived in full bloom. The ground had been ploughed and 500 pounds muriate of potash and 250 pounds phosphoric acid harrowed in per acre. The trees were pruned to a switch two feet high. They made a good start—only ten died. I kept the ground clean by a weeder. In August I visited them and found a great many sprouts or suckers and a luxuriant growth in most of the trees. I immediately began to prune. I cut out weak suckers, the weakest of two or more shoots, leaving the stronger, all branches that were liable to cross or make a too thick head and the tops of all switches that had died, making clean cut surfaces. In other words I cut off fully twice as much as I left. It attracted a great deal of attention because I removed so much at that time of year and almost everyone who passed told me I was simply killing the trees. I shall be very thankful if you can find time to tell me your opinion of such radical summer surgery. The middle of August I sowed cow horn turnips and dwarf Essex rape to be ploughed under about the middle of November. The trees have continued to make a good growth as have the rape and turnips. What I fear is that the pruning will so weaken the trees that they will winter kill. Your opinions will be thankfully received and fully appreciated.

You will be pleased to know that I again took first prize for cranberries at the Halifax Exhibition. They were raised in Nova Scotia.

Very truly yours,

ELI E. JOSSLYN, M. D., Philadelphia, U.S.

Light pruning of fruit trees may be done at any time of the year; old Peter Pruning Knife used to say the best time was when the knife was sharp. Heavy and radical pruning is better done when the wood growth is in a dormant condition, or else the growth of the tree is liable to be too much checked.

The leaves of a tree, being its lungs, are active in the summer supplying the carbon necessary to the building up of the tissues, and the work is scarcely completed in August. A little later the vigor of the leaves is absorbed into the wood, and being of no further service, they gradually fall. Then such pruning is safer. Possibly, however, these trees, being of a vigorous habit, may overcome the severe treatment

given them and show little evil resultant.

Fruits for Name.

Mr. W. Jeffers Diamond, Belleville. The apple is Wealthy; the pear probably Tyson.

Mr. W. J. Clarke, (postoffice not given.) The pear marked B. is Vicar, a winter pear; that marked D. is too ripe for identification.

Open Letters.



FIG. 2181. A FOUR YEAR OLD SEEDLING PEACH GROWN BY MR. D. SARE, ROSE VILLA, LONDON, ONT,

Rainbow Peach.

DEAR SIR,—I am sending by this mail three photographs of peach grown by me. Our president, Mr. John Balkwill, advised me that when writing you with regard to the same I was not only to make photographs, but was to give you a history of the tree, so as you could give it a place in your valuable journal. My wife and I bought some peaches when at Mackinac Island in August, 1897. My wife put two or three of the stones in her trunk and on our return home I planted the same; the following spring they grew, one of them more

vigorous than the others. I gave this one particular attention as to pruning, etc., and have been rewarded this spring by seeing my tree well covered with bloom. The tree set about one hundred peaches, which were thinned out to about thirty, and I harvested about twenty very fine peaches, four of them weighing one pound six ounces and a half and each measured in diameter as near as possible three and a half inches; the rest of the peaches were all very fine but not quite so large as these. The fruit is very fleshy, luscious, and has a very small stone; the color is a golden yellow inside with pink markings, finer peaches we have never

eaten. Is this not a remarkable growth for a seedling to have such fine fruit considering I paid no attention to fertilizing? I called them the rainbow peaches because their colors were so magnificent and beautifully blended, from a straw color to a purple. You will see that I have sent you three photographs that I made. The first one is out of focus, after making it I cut the peach in half before developing the plate, so I made another negative placing the peach together again, and thus the mark you see in the photograph. As you will see by the photo of divided peach, it is quite freestone. Can you give me the name of the peach? I have never seen one like it before. The height of the tree is eleven feet. If meritorious kindly give space in your valuable journal and oblige,

London South.

DAVID SARE.

Benefit of Irrigation.

SIR,—I am reaping the benefit of last year's irrigation. I have sold a car load of apples, while in many of the orchards here there is only one or two barrels. Even in one corner of mine, which is too high to be watered, there are very few apples, while just below the same varieties are loaded.

Vandeleur.

J. J. GRAHAM.

Value of Our Reports.

SIR,—Would you kindly inform me as to the best way in which I can procure the bound reports of the Ontario Fruit Growers' Association. I am a Canadian, and among my other books I had a copy of a report of your Association, and living here in the centre of the Ohio Fruit Belt, has proved of great interest and use to myself and neighbors, and have been requested to write you to see if I could secure other copies, and if possible a set of them. I myself am a florist, and when in Canada worked with Messrs. Manton Bros., Eglinton, W. W. Gammage, of London, and A. H. Ewing, of Berlin. There are quite a number of fruit growers and men interested in horticulture gather in our potting shed and discuss horticulture, and your reports will do a great deal of good. Any trouble or expense you may go to I shall gladly pay. Trusting you will be able to lend me your assistance in the effort to enlighten and help along the fruit grower and horticulturist, and thanking you in advance, I am, Sir,

Yours very truly,

HARRY McNAUGHTON.

Farmers' Institutes.

SIR,—The valuable character of the work done by the Farmers' Institutes in raising the standard of agriculture, and encouraging improved methods of farming is generally recognized. The report of Superintendent Creelman for last year has just been issued by the Provincial Department of Agriculture, and contains a great deal of valuable matter, embodying the latest conclusions of specialists in every department of farm work. It comprises, in addition to a record of the progress of the movement, a number of addresses and papers

read at Institute meetings, with explanatory diagrams and illustrations.

Among the changes made in the system, with excellent results so far, is the transference of the lecture work before the Horticultural Societies heretofore carried on by the Ontario Fruit Growers' Association, to the Department of Farmers' Institutes. A number of the local bodies will in future hold their annual meetings at the nearest Fruit Experiment Station, where they will have the benefit of practical instruction in grafting, spraying, etc.

The subject of poultry has received much attention. Special poultry meetings have been held at which leading poultry specialists gave demonstrations as to the best methods of killing and dressing poultry in accordance with the requirements of the market. Among the speakers at these gatherings were W. R. Graham, Prof. A. G. Gilbert, J. E. Meyer and G. R. Cottrell, well-known as poultry experts.

A notable feature of the year is the striking increase in the number of Women's Institutes, of which there are now 32 in operation, some of them having a membership of over one hundred.

As in previous years excursions have been run to the Agricultural College, giving many thousand farmers an opportunity to become familiar with the most modern process of scientific agriculture.

Action was also taken to promote the attendance at the Provincial Winter Fair, with the result that 1518 members, representing 34 Institutes, were in attendance. A special program was provided for Institute workers, and addresses delivered by a large number of prominent agriculturists and instructors.

Seed Fairs have been established in connection with four Institutes, viz., East York, South Wellington, West Wellington, and South Gray. These are held annually in March, and the farmers bring their best samples of grain for sale or exchange.

A leading topic at Institute meetings was that of cold storage, regarding which a good deal of valuable information has been furnished. During the meeting of the Experimental Union the delegates visited the cold storage plant at the Agricultural College and received an insight into the process of refrigeration.

An important step in the interest of the work was taken by the appointment of Superintendent Creelman to the position of assistant secretary and editor of the Association of Canadian Fairs and Exhibitions, which will give additional opportunity for advancing the movement.

Very substantial progress was made during the year covered by the report. Later information gives the total membership of the Farmers' Institutes in June last as 20,389, as compared with 18,058 for the previous year. The banner local Institute is that of Halton with a membership of 743.

China can be mended with water glass and powdered asbestos. Mix the asbestos with the water glass until like a thick cream. Cover the broken edges with this and press together, fastening firmly. The article should stand several days to allow the cement to harden.—November Ladies' Home Journal.

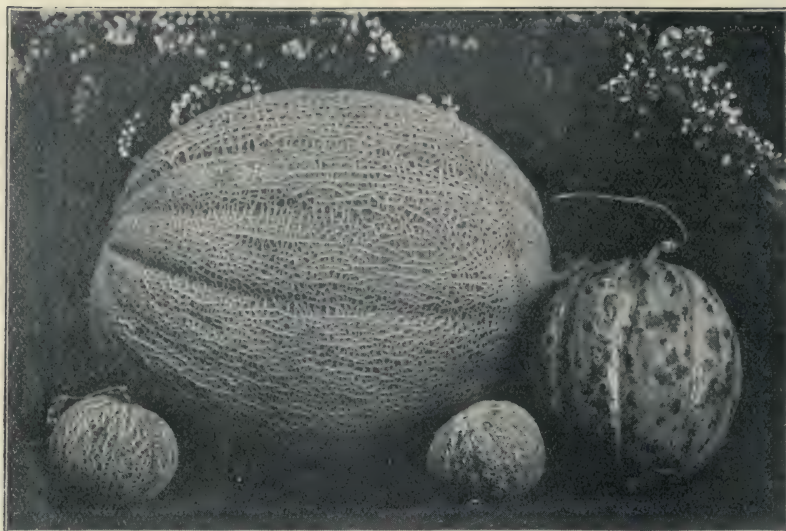


FIG. 2182. MUSK MELON.

Our Affiliated Societies.

TORONTO JUNCTION.—An interesting meeting of the Toronto Junction Horticultural Society was held on Friday evening, the 20th inst., in the High School, upon which occasion Mr. J. B. Spurr gave a paper on "Melons," practically illustrated by about forty specimens, embracing several different varieties. In the collection were watermelons with red seeds, black seeds and white seeds, red flesh, pink flesh and yellow flesh, golden rind, black rind, and rind with dark and light stripes, also muskmelons and cantaloupes in great variety, some netted and others with smooth skin, some red flesh, others with green flesh; oval melons, round melons, melons with ribs, melons without ribs, button melons and long melons like huge bananas. Mr. F. C. Colbeck, president of the society, occupied the chair, and around the long table were a number of interested listeners. Mr. Spurr's lecture dealt first with the early history of the melon, and traced the development of the netted musk melon from the rough and warty exterior of the cantaloupe, the first form of melon introduced into Europe, so named from the Castle of Cantaloupe in southern Italy, in the gardens around which the melons were first grown from seed introduced from Armenia. The lecturer had with him melons grown from seed which had been imported from Syria, Germany, England, the Transvaal, California and many American and Canadian localities. The largest watermelon grown was the Australian watermelon, which matured in the latter part of August and weighed $23\frac{3}{4}$ lbs. Only one hill of this variety was planted, none of the fruits were thinned out and the vine matured nine large fruits. The Australian melon is a red seeded variety with

deep red flesh and was pronounced the best flavored by those who were present. It is not claimed for it that it grows to a large size.

The Cuban Queen, which sometimes grows to a weight of 90 lbs., did not go more than 22 lbs. This watermelon is late in maturing and not especially adapted to the Canadian climate, although of excellent quality where sufficient heat is at command to mature it properly.

Another large watermelon did not succeed better than some of the common watermelons grown from seed purchased in the stores in the previous summer. About 22 lbs. was as large as this melon grew. Ice Cream, Dixie, Fair Oaks hybrid, Golden Rind and a white seeded variety from Syria were also grown, also Green and Gold, a very sweet melon, rather under-size, with bright yellow flesh and yellow seeds.

Among musk melons few of great size were exhibited. All the large Montreal Market, Pride of Alaska and Perfection melons had been stolen out of the garden a short time previously. Of these the Montreal Market would probably have been the largest; but the Perfection melon, seed of which was imported from the Transvaal, might have equalled it. The Perfection melon is illustrated in the photograph accompanying this article and is the large netted melon so conspicuous in the picture. This melon tipped the scales at $17\frac{3}{4}$ lbs. To the right is a cantaloupe, Cantaloupe Von Trevana, to illustrate the difference between a cantaloupe and a melon, and on the table are two mature melons of the Jenny Lind variety to contrast with the large netted one. In the background is a spray of the wild aster, *Aster Multiflora*, which

brightens our autumnal landscape by its delicate sprays of little starry flowers. In High Park, near Toronto, during the latter part of September, this flower mingles with many other varieties of asters, and the little bye-paths appear to be hemmed in by natural hedges of it, like spirea in the springtime.

A feature of the lecture was that portion of it which dealt with the physiology of the vine, the nitrates, and the effect of watering and liquid fertilizers upon the flavor of the fruit. Mr. Spurr's argument in short was, that melons planted in a sunny location transpired through the leaves to a greater extent than those shaded; that the function of the leaf was to extract carbon from the air and deposit it in the stem; that the greater transportation caused a greater deposit of carbon and the more carbon in the stem, the more material there would be for the fruits to draw upon when nearing maturity. To water the vines to excess when ripening was to dilute the carbon in the stem, encourage new growth of the vine and lessen the quality of the fruit in point of flavor.

Some of the musk melon varieties exhibited and sampled were: The Melrose, Exquisite, Read's Scarlet, Nectar of Angels, Golden Eagle, The Carmes, Hackensack, Banana melon, 23 $\frac{3}{4}$ inch in length by 14 inches in circumference; Osage, Netted Nutmeg, a green flesh melon from Syria, very unique; Cantaloupe Von Trevana, Jenny Lind and Perfection.

DESERONTO.—The fifth annual flower show of the Deseronto Horticultural Society was held in Union Hall, on Wednesday, Oct. 2nd, and it was a huge success. The judge, J. D. Collip, of Belleville, expressed unstinted admiration of the magnificent display and said it was doubtful if any of the towns

or cities for many miles around Deseronto could equal it. The hall, which has been repainted and decorated, made a good setting for the magnificent display of plants, flowers, fruit and vegetables, which were arranged with exquisitely good taste and effectiveness. The illumination in the evening added greatly to the beauty of the exhibition. The music of the Deseronto Citizens Band and the good things provided at the ice cream stand, which was under the able management of the charming president, contributed largely to the enjoyment of the evening. The fine bank of ferns which faced the main entrance was much admired and the collection of palms to the left contained some splendid specimens of rare and beautiful plants. The two collections of greenhouse plants were worthy of careful study and they received it. The arrangement of the plants in both collections showed that the gardeners were skillful and artistic florists.

SIMCOE.—The annual exhibit of flowers and vegetables took place in the Town Hall on Thursday, October 3rd. A beautiful display of potted plants and flowers were shown by the ladies of the society and others. The ladies seem to take more interest in the exhibit than the men. The vegetables and fruit were not so good. Mr. Groff, of Simcoe, came down in the evening. No one is better known than the genial President of the Simcoe Horticultural Society. That gentleman gave an excellent address on the Buffalo Exposition, chiefly in connection with horticultural and floricultural exhibits there. Le Lovering contributed largely to that exhibition, and won many prizes.

The hall was crowded, and a very pleasant and instructive evening was spent.



FIG. 2183. A HORTICULTURAL AND FARMERS' INSTITUTE MEETING AT SHERRINGTON'S FRUIT STATION, AT WALKERTON.

OUR BOOK TABLE.

APPLE CULTURE. and distinct lists of apples suitable for Ontario and Quebec, with descriptions of varieties, by W. T. Macoun, horticulturist, Central Experimental Farm, Ottawa.

This is one of the most practical and generally popular of the bulletins sent out by the Experimental Farms, and since it may be had by simply writing a post card to Prof. Macoun, surely no apple grower in Ontario will lose the opportunity. The pamphlet consists of 75 pages, and deals with Apple Culture, the Nursery, the Orchard, Varieties, Pollination, Pruning, Cover Crops, Renovating Orchards, Packing, Marketing, etc, etc.

FRUIT CULTURE AND FORESTRY is the subject matter of Prof. Macoun's evidence before the Select Standing Committee on Agriculture for 1901, and is certainly of much value to fruit men. The system of questions and answers adopted, brings out a large number of interesting particulars regarding the various fruits.

KINDERGARTEN OF LANDSCAPE GARDENING.—"What is a Kindergarten?" is written as the first part of a series "Park and Pavement." It is the forerunner of a new departure in landscape gardening where the association of plants with plants, and plants with mankind will receive the foremost consideration. Under Kindergarten I compass a spot as Froebel would have selected and equipped in extending his indoor kindergarten.

The book contains nothing borrowed from cover to cover, and is as valuable for the teacher as for the house builder, for the student of child character as for the philanthropist.

This book is by George Hansen, landscape architect, Berkeley, California, and may be purchased for 75 cents from this office.

EXPORT OF CHEESE AND APPLES.—Evidence of J. W. Robertson, Commissioner of Agriculture and Dairying before a select standing Committee on Agricultural, 1901.

This pamphlet contains much information relating to the apple trade in England, and the best methods of storing, handling, and exporting apples.

REPORT OF THE DIRECTOR, Wm. Saunders L. L. D., of the Central Experimental Farm Ottawa.

This is Dr. Saunders' fourteenth annual report, and shows the result of very much careful experimental work with such farm crops as wheat, oats, barley, peas, potatoes etc.

It concludes with a most interesting account of the Doctor's visit to Great Britain and France.

THE MACMILLAN COMPANY, who were the fortunate publishers of *Elizabeth and her German Garden*, will issue another anonymous work shortly. This time of American out-door life that bids fair, so say those who have read it, to rival Elizabeth's book. *The Garden of a Commuter's Wife—The record of a garden that began in Autumn*, will appear in time for the holiday season. It is now in press.

Windsor Salt

Purest and Best for Table and Dairy
No adulteration. Never cakes.

Seton-Thompson and the Bluejay.

"The author of 'Wild Animals I Have Known' has a gleeful way of wrecking conventionality," writes Myra Emmons, who describes a day in the woods with Ernest Seton-Thompson, in *The Ladies' Home Journal* for September, "with some unexpected, boyish, utterly frank, natural and human word, look or prank. When we had finished luncheon on Ab's Rock he went to see how the painters were progressing on his new house

"Those window frames must be a light peacock blue on the outside," he instructed them. The head painter demurred. He could not mix such a color.

"If I mix it you can copy it, can't you?" asked the naturalist.

"Oh, yes."

"Then bring your colors."

In a few minutes he was blending yellow, blue and green in a masterly way and trying the effect on a piece of board. Suddenly he looked up, laughed and went on painting.

"Did you hear the bluejay?" he asked, "As I hit the right shade he said, 'Bl-loo! Bl-loo! That's it! That's it!'"

The Trumpet Creeper

The finest creeping vine for porch or screen, with its fine large velvety shaped flowers, too little known in Canada.

Fine Plants sent postpaid for 25 cents each, or 6 for \$1.00, express prepaid; extra large at 50 cents, prepaid.

Address,

P. BLANCHARD,
GRIMSBY.

How Sankey Composes His Hymns.

As he sings, so Mr. Sankey composes the tunes for his hymns inspired by the feeling of the moment. Often he will stop suddenly in the midst of reading or talking to jot down on the ever-ready music-paper some bit of melody that comes to him. These jottings he gathers together and develops at his leisure, sometimes fitting them to poems preserved in his scrapbook, sometimes getting Fannie Crosby or another hymn-writer to write words especially for his music. He once said: "Good words will soon attract a good tune." He believes in melody always over harmony as a power to move people.—November Ladies' Home Journal.

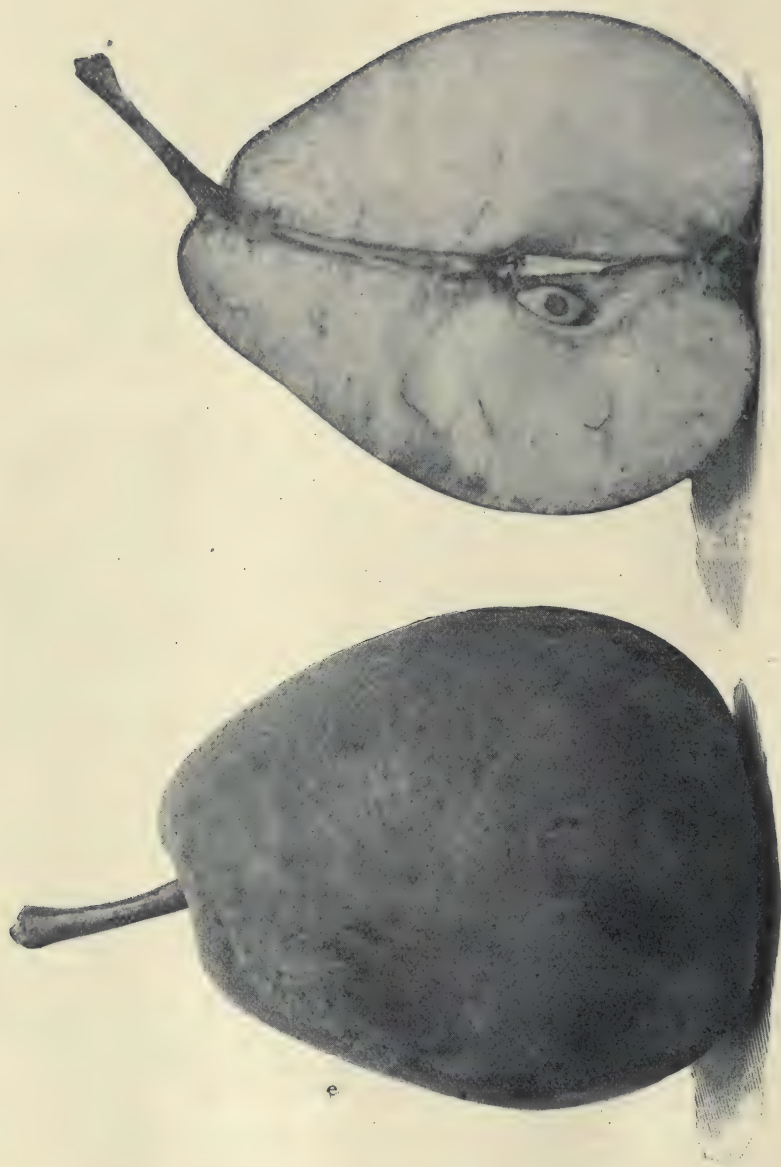


FIG. 2184. BEURRE HARDY.

THE CANADIAN HORTICULTURIST

Vol 24

1901

No 12

* * DECEMBER * *

BEURRE HARDY.

A good variety for the month of October, both for home use and market. The fruit is uniform in size, and the skin is covered with a bright clear russet.

ORIGIN: Boulogna, France; dedicated to M. Hardy, director of the gardens of Luxembourg, Paris.

TREE: fairly vigorous and productive, and forms a fine symmetrical form, especially when grown on the quince.

FRUIT: average size, 2 inches long by 2½ inches broad; form, obovate, obtuse, pyriform, of smooth,

regular outline; skin yellowish green, with numerous russet dots and covered with light brown russet, especially at the ends; stem, about an inch in length, stout, with a fold at the base, and inserted obliquely in a small depression; calyx large, open, in a shallow basin; flesh, white, fine grained, buttery, juicy, with rich aromatic flavor.

SEASON: October.

QUALITY: dessert, very good; cooking, good.

VALUE: home market, good; not exported as yet from Ontario, but exported with success from California to Great Britain.

COMMERCIAL PEAR GROWING.

DURING the last twenty-five years a complete revolution has come over commercial pear growing. In the year 1869 Mr. P. T. Quinn, Newark, N. J., published a book entitled "Pear Culture for Profit," which the writer read in 1871, and was thereby induced to plant freely of all varieties, with anticipations of a wonderful bonanza.

In speaking of the profits he said: "The subjoined list of the prices per barrel for which pears were sold in the New York market in 1866, '67, '68, I obtained from a responsible fruit merchant, who kindly placed his sales books within reach; thus enabling me to get accurate data on this important

point. These figures also show the comparative market value of the leading varieties of pears for the last three years. It will be observed that the prices for 1868 averaged higher than the two preceding years. This was, in a measure, owing to a partial failure, both of the peach and pear crops, last season in the eastern states. Where there are three prices per barrel, opposite one variety, such as \$10 to \$16 and \$25, the first two apply to the main crop, and the third to choice fruit of extra size, or else to a portion held back, until the chief supply was out of the market.

"In looking over the sales of pears in the New York market, I find the prices for

summer varieties are affected by the peach crop, ranging lower when peaches are abundant, than they do if peaches are scarce and high. This of course will not influence fall pears, and there is consequently less fluctuation in the prices of the latter varieties.

KINDS.	1866			1867			1868		
	PER BBL.			PER BBL.			PER BBL.		
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Summer Belle.....	6	8		5	9		8	12	
Bartlett.....	10	16	25	12	18	30	18	25	45
Duchess d'Angouleme.....	12	18		14	20	25	15	20	25
Beurre Bosc.....	14	18		15	20		18	20	30
Beurre Clairgeau..	16	20		18	20	25	20	25	30
Beurre Diel.....	22	16		14	16	20	16	18	20
Flemish Beauty....	10	14		12	16		14	16	20
Louise Bonne de Jersey.....	12	14	20	14	16	20	14	18	20
Virgalieu.....	12	18	25	14	18	25	14	20	30
Seckel.....	14	16	25	16	18	30	16	20	40
Lawrence.....	14	18		16	22				
Pound.....	6	10		8	10		10	12	20
Vicar of Winkfield.	8	14		10	14	18	10	16	20

"This list fully demonstrates to the fruit grower this important fact, that the varieties most extensively cultivated have steadily advanced in price. In 1858 we sold Duchess for \$1.50 per basket, or \$7.50 per barrel. Last year we sold them at \$6 per basket, or \$30 per barrel. In 1867 the same quality of fruit sold readily at \$20 per barrel. That year the crop was an average one, except in a few localities.

"When a young orchard comes into bearing—say five years from the time of planting—the trees will produce from \$50 to \$75 per acre. The trees at this stage require strict attention; some may be inclined to overbear, others to make too much wood. From the former, a part of the fruit set should be removed before it attains the size of a walnut. If too much fruit is permitted to remain on young trees, it will take several years of careful management to repay the damage done. When they are making too much wood, and they are not inclined to produce fruit, a judicious method of summer pruning should be instituted to change the habits of the tree.

"When the trees are ten years old the receipts should not be less than \$400 per acre, and there will be a steady increase in the returns, under proper management, until the trees have been planted fifteen or sixteen years, when the receipts will be at least from \$600 to \$800 per acre, and in many cases much larger. When choice pears command from \$10 to \$30 per barrel, as they have for the past three or four years, and this with a brisk market, it affords encouragement enough to induce horticulturists to make every effort to produce the best specimens of the varieties that the market demands."

Could anything be more misleading to an amateur or young fruit grower? And yet this book is still offered for sale as a book of instruction for pear growers! At the same time, anyone who is experienced knows that nowadays Bartletts do not bring an average of over \$4 per barrel, and very often only \$2; and that Seckels, which are quoted as high as \$40 a barrel, can hardly find buyers in Canada, owing to their small size.

Several of the varieties named in the list we would now condemn entirely as not worth the space they occupy in the orchard; for example, Summer Belle, Virgalieu, Pound and Vicar.

The day is past when a pear will sell just because it is a pear, and, instead, the day has come when buyers want only the largest and finest pear of its season. These, if packed as they should be to certain grades and sizes, will sell in any market, whether home or foreign, and sometimes a hungry market will pay large prices. For example, last year Duchess brought \$2.50 per half bushel case in Glasgow, which in Canada would not bring over 50 cents. This year they will not bring more than half that money in England, while our own home markets will pay \$1, and the grower will get more money out of the latter than the former market.

The Bartlett will always be our best sum-

mer pear ; no pear can take its place while it is in the market, but we doubt the wisdom of planting it for export. We have tried several shipments of it every year for five years past, and failure has resulted more often than success. Under ordinary conditions failure is certain ; but, if a low temperature can be guaranteed from start to finish, success is probable or almost certain. Last September, for example, we forwarded 1120 cases of Bartletts to Glasgow for our shipping company, and the loss, considering our markets here, was nearly \$1 a case, and all without government guarantee. The

trouble seems to have been a defective link in the cold storage chain.

But when we forwarded firmer varieties, such as Duchess, Anjou, Louise, Bosc or Clairgeau, success and satisfactory returns usually followed. Such varieties as these, therefore, should form the principal part of all large commercial orchards.

A neighbor, Mr. D. J. McKinnon, has shown his confidence in commercial pear growing by planting out 9000 trees of such varieties, and he is maintaining them at a large expense of cultivation, with an assurance that he is making a safe investment.

MARKETING PEARS.



THE methods used in marketing pears vary so greatly in different parts of the country that it would be impossible to describe them all in detail here. The season of the year, whether summer or winter, the distance from market, the purpose for which the fruit is intended, as well as many other conditions peculiar to the markets of different cities, all have their effect in determining the methods used by the successful pear grower. The California grower packs his pears, mostly wrapped in paper, in neatly constructed boxes, shipping them in carload lots to New York, Boston, or other eastern cities, or perhaps to London. The fruit is sorted and packed directly after it is picked from the trees, and is expected to ripen in transit and open up in prime condition for eating 3,000 miles or more from the orchard. The grower of the Le Conte and Kieffer pear in the Gulf States also packs his fruit in wholesale methods, using barrels or boxes, and ships it in car lots or sometimes even in train lots, to northern cities. On the other hand, the

Eastern gardener may ripen up a few bushels in his house and deliver them direct to his retail or wholesale customers. Large quantities of pears are consumed by the canneries, both on the Pacific Coast and in the Eastern States. The large crop of Kieffers, which is now getting to be such an important factor in the pear market of Eastern cities during the autumn months, is very largely taken up by the canneries, especially in Baltimore, and the trade in canned Kieffer pears is very rapidly increasing. For the canning trade the pears are almost always shipped in baskets of the type of the Maryland and Delaware peach basket, and the baskets are generally returned to the grower to be used over and over again. The price is often as low as 15 to 20 cents a half-bushel basket, and 25 to 30 cents is considered a good price. At this price Kieffer pear growing is immensely profitable. This can be readily understood when we realize that the yield is often more than 1,000 baskets per acre.—*Year Book of Department of Agriculture.*



FIG. 2185 APPROACH TO THE DIRECTOR'S HOUSE, CENTRAL EXPERIMENTAL FARM, OTTAWA.
ALL THE TREES AND SHRUBS HAVE BEEN PLANTED SINCE 1889.

CENTRAL EXPERIMENTAL FARM NOTES—XIX.

THE weather during the past month was, on the whole, fine and mild and very favorable for fall work.

It became considerably colder, however, on November 10th, and on the 14th, there were four inches of snow fell. On the same day last last year snow fell and remained.

At this time of the year plants have to be mulched to protect them during the winter, and while in some seasons when snow comes early and remains, there may not be much injury if this is neglected, the best practice is to mulch annually. At the Experimental Farm the bulbs, herbaceous perennials, grapes and strawberries are protected in this way. The bulbs and perennials are covered with a light dressing of long man-

ure; the strawberries, with a light coat of oat straw; and the grape vines are bent down and covered with soil. When this precaution is taken there is very rarely much injury from winter. The mulch or straw and manure prevents, to a large extent, the thawing and freezing of the ground, which often does so much damage to herbaceous plants.

Comparatively little is known of the Arboretum and Botanic Garden at the Central Experimental Farm, except by those who have visited Ottawa and seen it. When the farm was purchased, in 1886, sixty-five acres were selected for this purpose, and planting was begun in the autumn of 1889. Most of the land is high, and a fine view is obtained of the city of Ottawa,

on the north and east, while to the south there is a pleasing view across country with glimpses of the Rideau river in the distance. The Arboretum is bounded on one side by the Rideau canal, which at this point has marshy banks which take away much of the sameness which the canal would otherwise have, and also afford a splendid opportunity for experiments with aquatics, though little has yet been done in this direction.

Twelve years ago, when the first planting was made, comparatively little was known of the hardiness of a large number of trees, shrubs and herbaceous plants, as the number of species and varieties found in gardens was limited, but now more than 3100 kinds of trees and shrubs, and over 1300 perennials have been tested and notes taken on all of them. The number of individual specimens of trees and shrubs living in the Arboretum at the present time is more than 4200. This large collection has been obtained from many sources. From donations of seeds from Botanic gardens throughout the world a large number of species and varieties have been grown, the Royal Gardens, Kew, supplying many of them. The catalogues of nurserymen in America, Europe and Asia have been searched to increase the collection until it is now difficult to obtain additional species of many genera.

The trees, shrubs and herbaceous plants are increasing in interest every season as they get older and are better established, and throughout the year there is always something to instruct the visitor.

Descriptive lists of hardy trees, shrubs and herbaceous perennials which have been found the most ornamental have been published, and have proven very useful to persons desiring to plant their grounds. A catalogue has also been published of all the trees and shrubs tested in the Arboretum up to the year 1899, and notes given as to

their hardiness, but in this list no descriptions are given.

To one who had seen the Experimental Farm in 1887, and who had not visited it again until 1901, the change in what are known as the ornamental grounds must seem wonderful. The planning of these grounds has, since the Experimental Farms were established, been under the charge of Dr. Wm. Saunders. By his energy, a large proportion of the planting was done during the first few years of the Farm's existence and as a result the effects are much better than they would have been had the main planting covered a longer period of time. The road from the main entrance of the Farm to the office building which, when the work was begun had nothing along its margins to vary the landscape, save the fields of grain, is now at all seasons of the year brightened by the clumps of trees and shrubs which are grouped and scattered along its borders. The margins of the roads leading to the other buildings are also planted in like manner, while intervening areas are broken by lawns, flower borders, and flower beds. Some parts of the lawns now look quite park like where such trees as pine, spruce, birch, elm, maple, larch and other quick growing sorts have been distributed singly. Many of these are now more than twenty-five feet in height, and are excellent samples of the rapidity with which such trees grow when properly cared for.

Whoever doubts the possibility of making a complete change in the home surroundings by the planting of trees and shrubs, while one is young enough to enjoy the effects produced by them, should visit the Experimental Farm and see what has been accomplished in fourteen years.

W. T. MACOUN,

Horticulturist,
Central Experimental Farm.

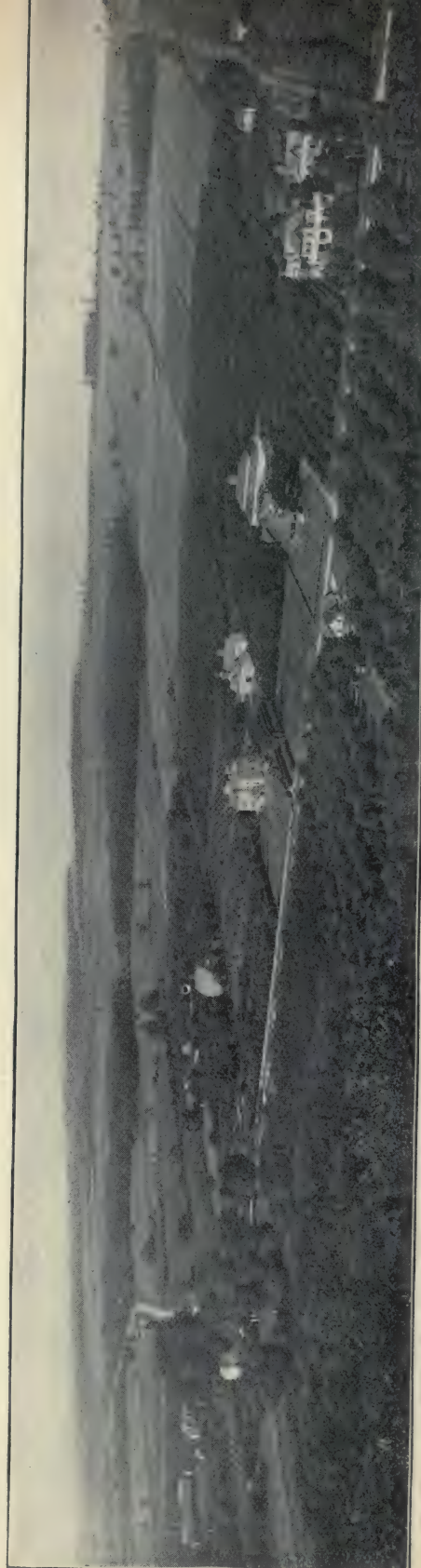
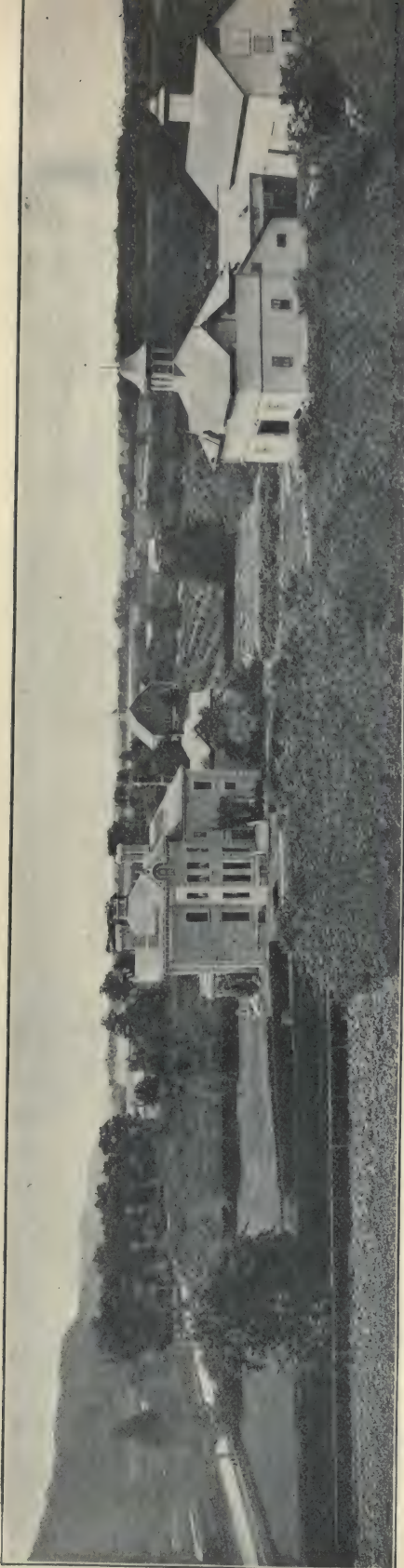


FIG. 2186-7. VIEWS NEAR FRUITLAND.

VISIT TO FRUITLAND.

THE small district now known as Fruitland, comprising but a small portion of the mountain valley between Hamilton and Grimsby is well named. The name should be applied to the whole section from Hamilton to the Niagara river and it would be well applied and full of significance. It would be no reflection on the ancient land of Canaan to say that it was neither more fair nor fruitful than the fruitland of Ontario, stretching between the cities of Hamilton and St. Catharines, and including all the Niagara district. And in its tillage this picturesque and fruitful domain is as yet but few stages beyond its primitive beginnings in the husbandry of the vineyard, the orchard and the peach grove. What its future possibilities are he would be a bold prophet who would attempt to predict. That future depends largely upon human agency and the energy and enterprise of the favored population whose lot may be cast within its pleasant and advantageous environments.

In my recent visit to this fair and fruitful district I found much to gratify the occasional visitor. And only the occasional visitor can note at first sight how rapid has been the progress in some localities and on some farms; yet observe with equal readiness that the laggard is still a dweller in the land of such advantages. It would be safe to say, however, that the unfortunate son of unthrift still to be seen here and there is not a reader of the *Horticulturist*, and has not yet felt the impulses of the progress and the civilization about him. With the natural wealth of soil beneath his feet and all the favorable conditions surrounding him, the laggard will have to move on, or the wave of progress, and the competition it brings with it, will some day strike him and he will either have to mount it or smother out, and give way to the man with an idea and the energy to turn it into thrift.

But these observations are only speculative and too abstract for the practical character of the *Horticulturist*, so I will get down to more matter-of-fact things. The greatest changes that I noticed in my recent visit to Fruitland, in the way of increased production, were in the lines of pear and plum culture. The most pleasing sight that I saw was a Kieffer pear orchard of 800 trees on the farm of Mr. Murray Pettit. These trees were about six years old, were handsomely loaded, and if the quality of the pear is at all commensurate with the bearing qualities and handsome appearance of the orchard the Kieffer has a promising future as a fortune-maker for its grower. Mr. Pettit was intending to ship the product of this orchard to the British market in cold storage, and since my visit I believe has done so. The method of cultivation followed by Mr. Pettit was to keep some green crop constantly growing and turning it under. The ground was scrupulously clean and ready for a fall seeding during my visit.

On one of the mountain ledges on Mr. W. M. Orr's farm I saw another orchard of Kieffers two years younger than Mr. Pettit's, which presented a very attractive sight. The trees being younger were not so heavily laden, and stood more erect, bearing their fruit more in the centre, and as a natural consequence the pears were somewhat larger in size. It was from this orchard that the finest Kieffers seen at the Pan-American were picked. On a ledge still higher up the mountain side Mr. Orr has a young peach orchard planted, which will give on account of itself in a couple of years more. This farm I think is one of the most attractive in the Fruitland district owing to its many mountain-side ledges on each of which Mr. Orr has a large plum orchard in full bearing, besides his several pear orchards. Whatever went off this farm to the Pan-American, and whatever goes off it to market, whether it

be peaches, grapes or plums from the natural level, or pears and plums from the higher levels, everything in sample and quality is first-class. Mr. Orr is a believer in thorough cultivation, and in giving all there is in the soil to the fruit crop. He also follows a thorough system of spraying.

What attracted my attention much on this visit, as on previous ones, was the barrenness of the apple orchards. And I wonder why so many progressive fruit-growers still encumber their valuable grounds with apple trees that I have not seen a paying crop upon in ten years. On a farm so generally fruitful, and so well cultivated as is Mr. M. Pettit's, I observed an orchard of thrifty Baldwin and Greening trees with no fruit on them. Up in this county of Perth we can grow more Baldwins on six trees than I have ever seen on Mr. Pettit's whole six acres. And what is true of Mr. Pettit's apple orchard is true of every orchard I saw from Grimsby to Hamilton. The trees seem to have so entwined themselves about the hearts, and grown into the memories of their owners that the latter cannot bring their

resolution into sufficient obedience to divine injunction to hew them down and cast them into the fire. Mr. Pettit, like many of his neighbors, is wasting much valuable ground in sparing those unprofitable apple trees.

I found considerable interest in looking through Mr. Pettit's experimental plot of grape vines, which he keeps in fine order. But the pleasure increases as one takes a ramble through his extensive Mountain Valley vineyard from which he gathered a clean and heavy crop this year.

I regretted very much not being able, for lack of time, to get down as far as Maplehurst farm, the home of our editor and secretary. I noticed much fine fruit from his premises at the Pan-American, and understood at the time of my visit to Fruitland that he was engaged in preparing an experimental shipment of pears to the old country market. I also noted in passing the improvements about his attractive home, which is now a spot of beauty and a delight to the eye of the passer-by and must be a joy unspeakable to the heart of the indweller.

T. H. RACE.



FIG. 2188. A VINEYARD AT STONEY CREEK, NEAR FRUITLAND.

PAN-AMERICAN HORTICULTURE—VI.

NINETEEN GOLD MEDALS FOR ONTARIO.

SIR:—I have put up four cases of apples from our exhibit at the Pan American for exhibition at your Cobourg meeting. They consist of a large number of varieties, some new and some old, but good samples. I have also secured a few York Imperial and Newton Pippins from Virginia. I have a list of the number and specimens of each variety, in each case and will come down and help you sort them out and place them on the tables. We will also have some year old apples from cold storage sent down.

The awards were officially passed to-night and I enclose you a copy.

St. Catharines.

ROBT. THOMPSON.

The following is the

LIST OF AWARDS.

GOLD MEDALS.

Province of Ontario, display of apples of 1900, June 7.

Province of Ontario, display of apples of 1900, October 12.

Province of Ontario, display of eight cases different varieties of apples as put up for export and held until August 17th in storage, opened up 97 per cent, good.

Province of Ontario, display of 163 varieties of apples of 1901.

Province of Ontario, display of 33 varieties of Strawberries of 1901.

Province of Ontario, display of 76 varieties of plums of 1901.

Province of Ontario, display of 71 varieties of peaches of 1901.

Province of Ontario, display of 68 varieties of pears of 1901.

Province of Ontario, display of out-door grapes, 117 varieties.

Province of Ontario, display of house-grown grapes.

Province of Ontario, general display of fruits of superior quality and excellence.

Brennan & Son, Grimsby, display of peaches.

Dempsey, W. H. Trenton, display of apples.

Orr & Son, Fruitland, fruits of superior excellence.

Pay, A., St. Catharines, display of fruits of superior excellence.

Railton, A., Fonthill, display of fruits of superior excellence.

Stewart, F. G., Homer, display of grapes of superior excellence.

Titterington, James, St. Catharines, display of fruits of superior excellence.

Woolverton, L., Grimsby, continuous display of fruits.

SILVER MEDALS.

Armstrong, Wm., Queenston.

Boyt, Geo., St. Catharines, for Asparagus.

Beattie, Thos., St. Catharines.

Bunting, Gordon, St. Catharines.

Burlington Horticultural Society.

Central Experimental Farm, Ottawa.

Collinson, S. & W. H., St. Davids.

Dempsey, H., Rednersville.

Freel Bros., Niagara.

Griffis, Alfred, St. Catharines.

Graham, R. J., Belleville.

Huggard, R. L., Whitby.

Merritt, T. R., St. Catharines.

Pay, A., St. Catharines, for asparagus.

Peck, Francis, Albury.

Purdy, C. F., St. Catharines.

Pettit, M., Winona.

Peer, Geo. N., Burlington.

Rickard, Wm., Newcastle.

Read, M. A., Port Dalhousie.

Read, M. A., Port Dalhousie, seedling grape, Lincoln.

Secord, C. E., St. Catharines.

Shepherd & Son, Queenston.

Stephens, C. L., Orillia.

Smith, A. M., St. Catharines.

Tweedle, Jos., Fruitland.

Thompson, Robert & Son, St. Catharines.

Ontario Experimental Stations.

Province in Ontario—Fruits in solution

BRONZE MEDALS.

Adams, E. P., Queenston.

Bradley, H. C., Queenston.

Bartlett, John, Oshawa.

Currie, Robert, Niagara.

Culp, S. M., Beamsville.

Cockburn, J. P., Gravenhurst.

Chaplin, W. H., Newcastle.

Dunn, Joseph, St. Davids.

Fallis, R., Harriston.

Fisher, C. E., Queenston.

Graham, R. J., Belleville.

Horning, Geo., Burlington.

Hagaman, T. C., Oakville.

Hambley, J. E., Cedar Springs.

Hilborn, W. W., Leamington.

Hopkins, W. V., Burlington.

Honsberger, C. M., Jordan.

Jackson, W. K., Niagara.

Kivell, T. H., Bridgeburg.

Leckie, J. A., Clarkson.

Law, Geo., Niagara Falls.

Lowrey, Chas., Queenston.

McGregor, J., Whitby.

Morden, E., Niagara Falls.

Morris, Stone & Wellington, Fonthill.

McLaren, J., St. Catharines.

Oysier & Son, Bloomfield.

Peart, Edwin, Burlington.

Peart, A. W., Burlington.

Patterson, J. A., St. Catharines.

Randall, J. D. W., Niagara.

Scott, John, St. Catharines.

Sexton, John, St. Catharines.

Shepherd, R. W., Que. Como.

Vanduzer & Griffith, Grimsby.
 Caston, Geo. C., Craighurst, fruits in solution.
 Hutt, Prof., O. A. C., Guelph, fruits in solution.
 Woolverton, L., Grimsby, fruits in solution.
 For Horticultural Literature, (Province of Ontario) Ontario Fruit Growers' Association.

HONORABLE MENTIONS.

Allan, W. J., Homer.
 Amburst, H. J., Pelham.
 Arnold, E. & Son, Queenston.
 Anderson, Dr. H. L., Niagara.
 Ashbaugh, C. D., Mohawk.
 Andrews, Rev., Beamsville.
 Adams, E. E., Leamington.
 Brown Bros., Fruitland.
 Brown, H. J. & Son, Niagara.
 Bruner, John, Rathbun.
 Bruner, Thos., Kingsville.
 Bell, Jas., Whitby.
 Backus, M., Chatham.
 Black, Geo., St. David's.
 Bennet, G. H., Walkerville.
 Biggar, G. C., Niagara Falls.
 Bromley, J. E., St. Catharines.
 Bufton, C., Niagara.
 Clement, John, Brantford.
 Campbell, Chas., Queenston.
 Coatsworth, G. M., Kingsville.
 Collins, H. E., St. Catharines.
 Cameron, R., Niagara Falls South.
 Carty, James, St. Catharines.
 Craize, Jas., Niagara.
 Dunn, L., St. Catharines.
 Ellis Bros., Stamford.
 Ellis, Wm., St. Davids.
 Freeman, W. H., St. Catharines.
 Freeman, J. S., Freeman.
 Freshwater, A., Grimsby.
 Fisher, J. O., Virgil.
 Fisher, W. F. W., Burlington.
 Fisher, Geo. E., Freeman.
 Grobb, J. C., St. Catharines.
 Ghent, T., Burlington.
 Griffiths, A., St. Catharines.
 Havens, J., St. Catharines.
 Haynes, A., St. Catharines.
 Haynes, L., St. Catharines.
 Hague, Jas., St. Catharines.
 Hendershot, W. M., St. David's.
 Hunsberry, W. A., Jordan.
 Hurd, H. H., Burlington.
 Hunter, Charles, Niagara.
 Hiscott, Major Jas., Virgil.
 Jones, Harold, Maitland.
 Johnson, Geo., St. David's.
 Kane, W. J., Niagara.
 Lampman, Joseph, St. Catharines.
 Lawlor, B. A., Whitby.
 McIntyre, E. J., Niagara.
 McCalla, W. C., St. Catharines.
 Mitchell, J. G., Clarksburg.
 Myerscough, Thos., Caledonia.
 Myles, A., St. Catharines.
 O'Malley, D., St. Catharines.
 Parnall, S. E., St. Catharines.
 Parnall, Jas., St. Catharines.
 Painter, Richard, Jordan.
 Pritchard, J. J. Harriston.

Pattison, F. G. H., Grimsby.
 Prest, Percival, Stamford.
 Pendergast, John & Son, St. David's.
 Pettit, A. H., Grimsby.
 Pettit, A. C., Southend.
 Pettit, C. C., Fruitland.
 Pettit, C., Niagara Falls.
 Ramsay, Allen, Niagara.
 Robertson, Geo. A., St. Catharines.
 Robinson, Jos., Niagara.
 Springer, D. W., Pt. Nelson.
 Slingerland, M., Niagara.
 Symington, James, Port Dover.
 Shepley, Isidore, Kingsville.
 Sandham, James, Queenston.
 Stephenson, E. B., Jordan.
 Stewart, Alex., St. Catharines.
 Smith, E. D., Winona.
 Shearer, Sam, Niagara.
 Vrooman, W. H., Queenston.
 Wilkins, O. F., Bridgeburg.
 Woodruff, H. C., St. David's.
 Warner, W. A., Trenton.
 Watt, Dr. T. H., Niagara.
 Wyld, Mr., Hamilton.
 White, C. E., St. Catharines.

The following table shows in detail the number of awards in each State in gold, silver, bronze, and honorable mentions, together with a table showing the total number of awards in each class.

	Gold Med.	Silver Med.	Bronze Med.	Hon. Mention.	Total.
New York.....	42	47	103	173	363
Ontario.....	19	33	35	85	166
Oregon.....	12	11	40	14	77
Washington.....	12	11	16	17	56
Illinois.....	12	5	20	14	51
Michigan.....	5	10	18	26	56
Florida.....	7	5	5	..	17
California.....	6	3	6	8	23
Missouri.....	8	2	82	6	98
Wisconsin.....	3	4	17	14	38
Nebraska.....	3	2	2	3	10
Delaware.....	3	5	19	13	40
Connecticut.....	3	2	14	8	27
Idaho.....	3	2	8	11	24
Maine.....	2	1	12	3	18
Virginia.....	2	3	22	11	38
New Mexico.....	..	2	3	5	10
Minnesota.....	1	1	6	8	16
New Jersey.....	1	1	13	7	22
Nova Scotia.....	1	1	3	3	8
Kansas.....	..	1	1	1	3
Arizona.....	..	1	1	2	4
Mexico.....	1	1	3	5	10
Ohio.....	..	..	1	1	2
Pennsylvania.....	..	1	..	1	2
Chill.....	..	1	2	1	4
Quebec.....	..	..	1	..	1
N. Hampshire.....	..	..	1	..	1
North Dakota.....	..	..	..	5	5
Iowa.....	..	..	1	..	5
Indiana.....	..	..	1	..	1
Dist of Columbia.....	..	..	..	1	1
Jamaica.....	..	1	..	..	1
Peru.....	..	..	1	..	1
	146	157	457	446	1,206

Total entries in all States—3,661.	
Total awards in all classes.....	1,206
Total gold medals given.....	146
Total silver medals given.....	157
Total bronze medals given.....	457
Total honorable mention.....	446

COMPARISON WITH GROUPS OF STATES.

The following gives, in tabular form, a comparison of Ontario winnings as compared with the combined winnings of three American States.

The following gives a similar comparison with three American States.

	Gold.	Silver.	Bronze.	Hon. Mention.
Illinois.....	12	5	20	14
Michigan.....	5	10	18	26
Missouri.....	8	2	82	6
Total.....	25	17	120	46
Ontario.....	19	33	35	85

Another comparison with six good States:

	Gold.	Silver.	Bronze.	Hon. Mention.
Florida.....	7	5	5	..
Delaware.....	3	5	19	13
Maine.....	2	1	12	3
Wisconsin.....	3	4	17	14
Nebraska.....	3	2	2	3
New Jersey.....	1	1	13	7
Total.....	19	18	68	40
Ontario.....	19	33	35	85

THE WINDUP OF THE FRUIT EXHIBIT.

Mr. W. L. Smith of the Sun writes of the grand display by Ontario at the close of the exposition as follows:—

The Ontario fruit exhibit at Buffalo is being wound up in a blaze of glory. So abundant are the supplies now going forward as a result of voluntary effort on the part of the contributors, that Superintendent Bunting was last week obliged to arrange for an overflow exhibit, and this is now tastefully displayed about one of the pillars in the principal aisle of the Horticultural building.

The two most striking features in the principal display made by the Province last week were in the form of two great mounds of apples, one located at each end of one of Mr. Bunting's tables. One of these mounds was made of Fameuse (Snow) apples, and the other was composed of Spys—the former having been contributed by R. W. Sheppard, Montreal, and the latter by Warden Rickard of Durham and Northumberland, and W. H. Dempsey of Trenton. These mounds caught the eye of everyone who came near, and the artistic arrangement and fine quality of the fruit were greatly admired. Mr. Sheppard it may be noted in passing, for years sent the late Queen Victoria an annual present of Canadian apples, and this year he has continued the present to King Edward. In commercial matters he makes a specialty of boxes of carefully selected fruit for the Army and Navy Stores in London—selling these boxes at a

guinea when ordinary packed apples are selling at about \$4 the barrel.

Among the other contributions to the display last week, deserving of special mention, were: Some excellent Ben Davis, Baldwins, and Spys sent in by W. H. Chaplin, Newcastle; some beautiful Pewaukees contributed by Geo. L. Bolster, Orillia; Kentish Fillbaskets, forwarded by R. L. Huggard, Whitby (one of these seemed almost large enough to fill a basket itself); some large, well colored, and perfectly formed Kings sent by James McGregor, Whitby; fine specimens of Ben Davis and Baldwins from the orchard of James Bell, Whitby; some St. Lawrence sent in by Harry Dempsey, rivalled the blush of a maiden, and Wolf Rivers that were worthy mates of Mr. Huggard's Fillbaskets; while J. E. Hambly of Cedar Springs contributed the finest quinces seen in any part of the Horticultural building last week.

Besides all this stock, a lot of the cold storage apples were still on exhibition, some of last year's Ben Davis, after an exposure out of cold storage for a month, being still as bright and attractive in appearance as this year's fruit.

Finally, there were shown a collection of sweet potatoes grown by James Titterington, St. Catharines. These sweet potatoes, with the peanuts previously referred to, prove that Ontario, besides producing the finest of Northern apples, can equal the Southern States in at least some products of a semi-tropical nature.

With the help of those fruit-growers who came to his assistance from different parts of the Province, Superintendent Bunting was able to put up a display which puts Ontario ahead of any State which exhibited at Buffalo with the single exception of New York. New York obtained 42 gold, 47 silver, and 103 bronze medals, and 173 honorable mentions, or a total of 365, as compared with 19 gold, 33 silver, and 35 bronze medals, and 85 honorable mentions for Ontario.

While Ontario obtained 19 gold medals, no State, outside of New York, secured more than 12 of this class: while we obtained 33 silver medals, the best of the others, outside of New York, secured 11; in bronze medals we got 35, only three States getting a higher number. In honorable mention we were led by but one State, viz., New York.

This can be put in an even more striking form. Ontario took 19 gold medals, as compared with 25 taken by the three States of Illinois, Michigan, and Missouri. In silver medals we took 33 to 17 of the same class of medals by these three States. In bronze we had 35 to 120, and in honorable mention 85 to 46. Moreover the three States named were on the grounds all the time, and occupied four times as much space as Ontario, while each one spent many times as much money on their exhibit and help as Ontario spent.

The next comparison is with six good States—Florida, Delaware, Maine, Wisconsin, Nebraska, and New Jersey. All told, these captured exactly the same number of gold medals as Ontario alone secured. In silver medals we outnumbered their combined winnings by nearly two to one. In bronze medals we won more than half the number won by the six, and in honorable mentions we won double the number that they did.

THE EVOLUTION OF A LOCAL HORTICULTURAL SOCIETY—II.



FIG. 2189. ST. JOHN'S CHURCH.



FIG. 2190. ON THE GRAND RIVER.

CAYUGA is agreeably situated on the Grand River in the centre of its County, and although it is not of very much importance commercially, still it is backed by a thickly populated agricultural district of much vigor and wealth. La Salle was first struck with the beauty of the Grand River and in our own time Goldwin Smith placed the picturesque beauty of the Grand River as first of its kind in Ontario, that of the Blue Mountains and the Thousand Islands second and third respec-



FIG. 2191. THE CITY HALL

tively. Cayuga nestles in pastoral loveliness in the midst of the only hills of a flat country that extends many miles in length.

The aim of our Society is, in some measure, to restore to Cayuga its ancient heritage of beauty, to make it clean and wholesome in the hope that as it grows in time, architecturally, bespeak the mental health, power, pleasure and elevation that order and thought produce.

Of course we look for and seek help from



FIG. 2192. RESIDENCE OF H. MUSSEN.

every one on all sides ; it is stated that at our station, now enveloped in darkness at night and mud in the daytime, the local superintendent is thinking of uniting with us and making a park in the station grounds, planting trees, adding gardens and placing out recreation benches.

At our Court House the good work is proceeding, the southern entrance to the grounds is just being re-modelled, pointing to additional handsome drives, new flower beds, cement walks, while an ornamental hedge has been added. The Anglican Stone Church, the crowning life work of the Rev. John Francis, B. D., ere he retired to a well earned superannuation, stands on large grounds adjoining the Court House park. Our society has caused these grounds to be terraced and fittingly laid out in magnificent proportions, in keeping with the beauty of the building.

The town park has been levelled in part, sodded, while double tennis courts have been added on each side of the band stand.

Privately, too, our local enthusiasts have

all contributed their quota to the good work. There are still many difficulties to overcome. Dirt triumphs in many streets, many people still love to make a barn yard of the road in front of their dwellings. In many quarters paint is unknown, but our work is telling, and if we accomplish but a part of what we hope for each year, the reign of filth, disorder, smells and bad roads, will give way to order and beauty, so that some day Cayuga, when the inevitable trolley line from the outside world seeks her, will not be found wanting.

Cayuga, Ont.

A. K. GOODMAN.



FIG. 2193. A LOCAL HORTICULTURIST.

THE BRILLIANT GRAPE, a cross between Niagara and Delaware, is reported by the Rural New Yorker, as susceptible to rot.

At Maplehurst it has not yet shown this tendency.

CANADIAN APPLES AT THE EXHIBITION. A NEW SUPPLY FOR GLASGOW.

GATTONSIDE HOUSE,

Melrose, Oct. 6, 1901.

SIR,—One of the advantages conferred upon the public by your International Exhibition is that it has shown us what other countries might send us if only proper communications with them were opened. Thus, whilst strolling round the Canadian Section last July, I came upon tables containing the most magnificent display of apples I ever witnessed. Entering into conversation with the gentleman in charge, he kindly explained to me the different varieties, and also allowed me to taste several, which I found to be excellent. The varieties he particularly recommended as first-rate eating apples were Alexander, Gloria Mundi, Holland pippin, Wealthy, Fameuse, Ben Davis, Mann, Spitzenburgh and Blenheim Orange. I was surprised to find that out of 50 varieties exhibited by Canada at your Exhibition, only three are as yet known in Britain. I was also struck by the fact that these apples were in excellent condition for eating in July, whilst Scottish fruiterers' supplies of American and Canadian apples finished in May.

Having a very influential friend in Toronto I wrote to him of my visit to your Exhibition, and of my discovering there 47 splendid varieties of Canadian apples as yet unimported into Britain. I gently chid him for keeping all the best Canadian apples to himself, and summoned him, as a loyal son of the empire, to give us at least, fair trade in apples, and to induce Canada to send us every variety of apple grown in the Dominion. I also pointed out that our supply of Canadian and American apples closed in May, whereas I was eating capital Canadian apples in Glasgow Exhibition in July.

My friend took my criticism so much to heart, and has so great a love both for his Scotland and for Canada, that he placed himself, without delay, in communication with one of the leading officials connected with the apple-growing industry in Canada: and I have now the pleasure of transcribing pro bono publico the letter which that official wrote to my friend in Toronto:—

“Ontario, September 20, 1901.—Dear Sir,—I have your letter of the 18th inst., inquiring why those magnificent Canadian apples are not placed for sale in Glasgow. I think I may reply that the probability is that these apples will in a short time be regularly shipped from here to Glasgow. Last year was the first season when our cold storage accommodation on shipboard was of such satisfactory character that we were able to send forward our best fruits in safety to the old country. By the ordinary methods of carriage, our fruits were frequently ruined before they arrived in the old country, and of course, could not be held any time afterwards. Last year I took advantage of the improved arrangements, and put up for the Dominion Government nearly 200 cases of apples for Glasgow Exhibition. These were held in Montreal in cold storage until the month of May, after which they were forwarded in cold storage compartments to Glasgow, and brought upon the tables from time to time as they were required. I am informed by the commissioner in charge that he could have sold large quantities of these apples in July and August at high prices to the Glasgow people. I have no doubt that an excellent trade will soon be developed in this direction.”—I am, &c.—
Ralph Richardson, in Glasgow Herald.

A NOVA SCOTIA FRUIT HOUSE.

THE following description of a Nova Scotia apple storage house is furnished me by my friend, Prof. F. C. Sears, director of the horticultural school at Wolfville. He says that apple warehouses are each year becoming more common in the great apple district of Nova Scotia, the Annapolis valley. They are built either by large speculators who deal extensively in apples, by English commission firms for the accommodation of their patrons, or by co-operative associations of the growers themselves, and are used either for the permanent storage of fruit or for temporary storing of apples as they are brought from the farm, and until they can be forwarded by rail to Halifax, and there loaded on steamers for England. Fig. 2194 shows one of several which were built in 1899. It is 85 feet long by 20 feet wide, and has a capacity of about 4000 bbls., with loading accommodations for three cars at one time along the side.



FIG. 2194. PERSPECTIVE OF NOVA SCOTIA HOUSE.

The building rests on a stone and brick cellar wall 8 feet deep, and the superstructure has walls 10 feet high. The walls are covered, on the outside of the studding, with two courses of inch boards, with building paper between, and this again is covered with paper, with shingles on the outside. Inside, the walls are first lathed and plastered with selenite and lime mortar. Then inch strapping is nailed against the studding,

and the whole is covered with 1-in tongued and grooved spruce sheathing. The ceiling is covered with the same kind of sheathing, with building paper laid lengthwise of the joists between them and the sheathing. The upper floor is also laid double, with paper between, thus protecting the body of the building from frost from above.

The window and door frames are made with double casings buried in the covering in such a manner as to preclude the possibility of draft or frost, as seen in Fig. 2195. The windows have double sashes, and are provided with storm shutters for protection against heat as well as cold. The doors are also double, one swinging outward and the other inward, and fitting closely into beveled jambs. These doors are built on 2-in pine frames, with 1-in tongue and grooved sheathing on each side of frame, and paper between.

There are three hatchways in the lower floor, provided with gratings, or tight hatches if required. The ventilators extend from the ceiling to the roof, and are provided with slides to close when necessary. The cellar has also double windows and 4-in ventilator tubes in the sides. Both the cellar and the main floor of the building are proof against frost in the coldest weather, and altogether this warehouse is admirably adapted to the purpose for which it was built, and has proved invaluable to shippers.

*From advance sheets of Prof. F. A. Waugh's book on "Fruit Harvesting, Storing, Marketing."

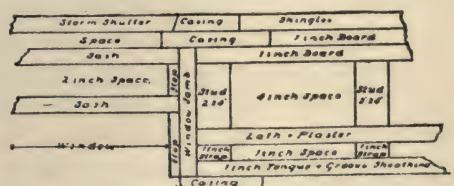


FIG. 2195. SECTION THROUGH WALL AND WINDOW.

REMOVING TREES—"GRUBBING" THE BEST AND CHEAPEST WAY—HOW TO DO IT.

SOME years ago an effective contrivance was patented for pulling small trees by horse-power. We think the machine is not now manufactured, and in any case the common method of "grubbing" is found to be cheapest and most satisfactory, says the Country Gentleman. The accompanying diagrams will help to explain the method most commonly in vogue. The writer has grubbed many acres of land similar to that described by the method hereinafter recommended, and therefore is able to speak about it intelligently.

Provide a good heavy yoke of oxen—horses or mules can be used, but they are not entirely satisfactory. Two log chains seven to ten feet each, a driver and a grubber will be required. If the tree is somewhat large, the grubber cuts off one or more of the roots.

The oxen are started and the operator readily sees where the roots rise on the opposite side. While they are under strain one quick, well directed blow with the sharp



FIG. 2195.

end of the grubbing hoe will sever the root. The smaller roots will be dragged out. If the tree should be tap-rooted, a little earth may have to be removed, and as the tree is on a strain it is severed by means of an axe or the hoe.

The oxen should be driven at a sharp angle with the outer border of the wood. As one tree is removed another is hooked, and so on until the end of the wood is reached, when a reverse operation takes place. This is to obviate the necessity of backing the oxen and of removing the tree after it is pulled to a distance sufficient to allow the tree to be pulled down at right



FIG. 2196.

angles to the border of the wood.

It is readily seen that if the oxen are driven in a direction nearly parallel with the border of the wood but a narrow place will have to be kept clear.

The grubbing hoe should be made of the best of steel, well tempered, and be kept sharp by grinding once a day.

THE WIND AS A DISTRIBUTOR OF POLLEN.

IT HAS been said that anything can be proved by statistics. The proof seems conclusive, for figures cannot be disputed. In a similar way, all sorts of things are proved by experiments. The trouble is

not with the experiments, but with the conclusions drawn from them.

The above reflections were caused by reading an account of some experiments recently made by an eminent eastern horti-

culturist, Prof. Waugh. The purpose of one experiment was to demonstrate the necessity of cross-fertilization in the pollination of apples. Clusters of buds were covered with paper sacks, which were not removed until the blooms had fallen. Out of 2,586 blossoms covered all failed to set fruit except three. Prof. Waugh regards this as conclusive proof that a blossom must be fertilized with the pollen from a blossom of another variety before it will bear fruit.

But were there not other things to prevent the covered blossoms from setting fruit besides lack of pollen from another variety? Doubtless the partial exclusion of light, heat and air by the paper bags had something to do with it. Possibly more blossoms would have been fertilized had the pollen from other trees of the same variety been permitted to touch them. No two trees are exactly alike and cross-fertilization between two trees of the same variety may produce better results than where a single tree is compelled to fertilize itself, as where the blossoms are covered with paper sacks.

These suggestions are offered as affording a possible explanation of the result of the experiment. Prof. Waugh would have us believe that the experiment proves that self-fertilization is practically impossible with apple trees and therefore it is unsafe to plant large blocks of one variety. The fact that

large blocks of one variety are planted and bear heavy crops of fruit proves that this is a wrong conclusion. However we believe it is better to mix varieties, though not absolutely necessary.

Another experiment was made for the purpose of ascertaining to what extent pollen is carried from one tree to another by the wind. Small slips of glass such as are used in microscopes were coated with vaseline and lampblack and placed near the plum trees during the blooming season and left in position twenty-four hours. One slip was placed north of the tree, the wind being in the north, and did not catch any pollen. Of course not. How could the wind carry pollen against itself? Another slip was placed east of one tree and west of another and did not catch any pollen. Wind should not be expected to carry pollen at right angles to its course. Another slip was placed south of a tree in line with the wind and another in the midst of several trees. One slip caught seven pollen grains and pollen masses and the other twenty-five. This certainly proves that the wind is an important carrier and distributor of pollen: yet Prof. Waugh says that it proves that the wind is very inefficient and plays no consequential part in the pollination of fruits.—O. H. Barnhill in *20th Century Farmer*.

COMING EVENTS.

Entomological Society of Ontario at London, November 13 and 14; secretary, W. E. Saunders, London.

Ontario Fruit Growers' Association at Cobourg, December 4 to 6; secretary, L. Woolverton, Grimsby.

Ontario Agricultural and Experimental Union, at Guelph, December 9 and 10; secretary, C. A. Zavitz, Guelph.

Ontario Provincial Winter Fair, at Guelph, December 10 to 13; secretary, A. P. Westervelt, Toronto.

Western Ontario Poultry Show at Guelph, December 10 to 13; secretary, A. P. Westervelt.

Eastern Ontario Dairy Association at Whitby, January 8 to 10; secretary, R. G. Murphy, Elgin.

Western Ontario Association (place not fixed), January 14 and 15; secretary, George Hatley, Brantford.

Eastern Ontario Poultry Show, Ottawa, Feb. 12; secretary, A. P. Westervelt, Toronto.

Eastern Ontario Auction Sale of Pure-bred Stock at Ottawa, February 12th; secretary, A. P. Westervelt.

Maritime Winter Fair at Amherst, N.S., Dec. 17 to 19; secretary, W. W. Hubbard, Halifax, N.S.

Ontario Beekeepers' Association at Woodstock, December 3 to 5; secretary, W. Couse, Streetsville.

HOW FAR NORTH CAN THE APPLE BE GROWN.

IN the spring of the year 1855 a Mr. Hubbard, I think his name was, had a nursery near the town of Guelph. In a conversation with him he made the statement to me that he was so satisfied that the County of Wellington was not and never would be adapted for growing apples, that he had concluded to sell off his stock for what it would bring and go out of the business.

Now we can say that Mr. Hubbard was mistaken, for the apple grows all right in the County of Wellington, and much further north.

About the year 1865, Peter Henderson, of New York, in an address I think at Rochester in answer to the question, said certainly not beyond the limit of where the beech is grown. Now at this date we know Peter Henderson was wrong; we are here in St. Joseph's Island beyond the limit of the beech, and still we find the apple growing, I may say to perfection, or as near as insect pests, rust, etc. will let it.

Several years later a member of the Cabinet, in the town of Fergus, in course of his speech made the following assertion, that Owen Sound was the extreme point north where a man could live and draw his substance from the soil. Some one of the audience called out, "Won't Peaches grow up there?" "No," was the reply, "if you can grow potatoes it will be as much as you can do." Now we know that if he was right about the peaches he was wrong about everything else.

The first and greatest mistake I have made, and I may say we have all made, was getting it into our heads that we were too far north to grow fruit, and if we bought a

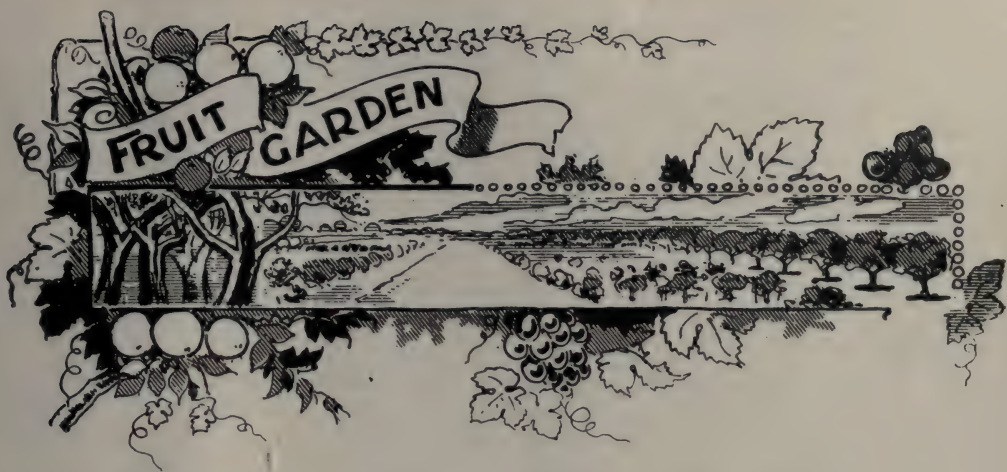
dozen apple trees it was to get the fruit tree agent out of our home, for we never expected them to grow; we might dig a hole and put them in but that was the last of them.

Now in 1901 we know a good deal better than that; we know that they will grow if properly taken care of, and that the percentage of failure is as low as in what is usually supposed to be more favoured districts.

A very few years ago if any one had asked me if, as a commercial venture, it would be wise to plant a few acres of apples, I would undoubtedly have said no, I did think we could grow a few for our own use of some very hardy varieties but nothing more; but more interest began to be manifested in fruit culture, and this year when you people in eastern Ontario are lamenting your short crop of apples and holding them up for a big price, we have a splendid crop, and of course we are taking advantage of your scarcity and raising the price. I knew of two instances where outsiders have come in and bought out the whole crop.

Now we are by no means at the outside of the fruit belt here yet, for near Green Lake, about latitude 46 may be seen or was a year or two ago, two aged apple trees of an inferior variety presumably seedlings; and beyond the height of land on the slope toward James Bay, wild currants and strawberries may be found, while I have been told at Batchawing Bay on the north shore of Lake Superior about latitude 47, apples have been planted a few years ago, and so far have lived through the winters and made satisfactory growth.

Richard's Landing. CHAS. YOUNG.
St. Joseph's Island.



FIRST LESSON IN FRUIT GROWING—I.

IN the general round of his work, the fruit-grower has to deal largely with trees, vines, bushes or plants. That he may at all times care for and manage these intelligently, he must know something of their structure, and of the functions which the different parts of the tree or plant have to perform.

Roughly speaking, we may say that a growing tree is made up of roots, trunk, branches, buds and leaves, and that under certain conditions it produces flowers and fruit ; but for our purpose it is necessary to study these parts more closely that we may notice the various forms which they present, and if possible learn the objects which they fulfill in the economy of tree growth.

THE ROOT.

Where the root joins the trunk, just at or about the surface of the ground, is what is known as the *collar*. This is not a fixed point, as its position may be raised in young trees by banking earth about the trunk, new roots being formed above the older collar.

The first root formed is the *tap root*, which usually goes straight downwards from the collar. In some trees, particularly the nut

bearing trees, such as the walnut, hickory and oak, the tap root becomes very large and strong. In fruit and ornamental trees, which are taken up and transplanted when quite young, this downward growth of tap root is checked, and development of lateral roots takes place.

The *lateral roots* may be said to be branches from the tap root. They grow more or less horizontally, and usually spread a good deal farther in the ground than the branches of the tree spread in the air above them.

The tap and lateral roots are the largest roots, but associated with them is usually a greater number of smaller thread-like roots known as *rootlets* or *root fibres*. In some kinds of trees they are much more freely produced than in others. They are most abundant in trees having a thick, branchy top. The quince and peach has usually lots of fibrous roots, while in the apple and pear the laterals are more or less bare of root fibres. The more frequently a tree is transplanted, the more fibrous its roots become.

To complete the root system, there is still another class of roots known as *root-hairs*. These are very delicate, hair-like roots, so small that they can hardly be seen without

the aid of a magnifying glass. They are so delicate that they are easily destroyed by bruising or by slight exposure to the sun or wind. In the ordinary practice of transplanting, the greater part of the root-hairs are broken off and destroyed, but if the soil conditions are favorable they are rapidly reproduced.

THE FUNCTIONS OF ROOTS.

One of the self-evident functions of roots is to anchor or support the tree in the ground. To this end the development of the roots of a tree correspond very closely with that of the top above ground. If the top is low and spreading, the roots will be shallow and spreading. If the top is high, exposing it to strong winds, the roots naturally grow deeper to anchor it more firmly in the soil.

Another function of the roots is to dissolve inorganic elements in the soil, making them available as plant food. This solvent power of the roots is due to the acid juice contained in the root-hairs, which acts chemically upon the mineral plant food in the soil, gradually dissolving it so that it may enter into the growth of the tree.

In addition to rendering plant food available, the roots absorb soil moisture containing this plant food in solution. The absorption of soil moisture takes place mostly in the root-hairs and small rootlets; the older roots, covered with a hard thick bark absorb very little, if any at all.

From this brief study of the nature and

functions of roots, it will be seen that while the older and larger roots may be most important in anchoring the tree in the soil, yet the newer and smaller roots and root-hairs, which are usually most remote from the trunk, are most attractive in nourishing the tree.

PRACTICAL CONCLUSIONS.

In this connection a few practical points may be emphasized, which should be remembered in the management of trees singly or in orchards:

1. In transplanting young trees, the better the root system is preserved uninjured, and the more favorable the soil conditions for growth, the more readily the root-hairs are reproduced, and the roots establish themselves in their new position.

2. In watering newly planted, or even established trees, if the water is to be of any use, it must be applied so that it will reach the smallest roots.

3. Whenever a fertilizer of any kind is applied for the benefit of the tree, it should not be banked around the tree trunk as is often done, but should be spread evenly over the ground out as far as the roots extend. The rain water passing through the soil will gradually wash it down to where the root-hairs can get at it.

4. As water is the vehicle by which all plant food is taken in by the roots, it is important that the soil be so managed as to conserve soil moisture sufficient to supply the needs of the tree.

O. A. C., Guelph. PROF. A. H. HUTT.

A FINE RECORD.—Mr. W. A. McKinnon, Chief of the Fruit Division, Department of Agriculture, reports as follows:

"The 'Marina,' on her last trip, carried a lot of Bartlett and other pears, and they were reported landed in good condition. The thermograph re-

cord shows that the fruit was carried at an average temperature of 39 degrees, with a variation of not more than two degrees during eleven days' run. Mr. Robt. Logan, Chief Engineer of the 'Marina,' deserves the gratitude of the fruit trade for this performance, which also reflects great credit on the Donaldson Line."

DWARF PEARS.

DEAR SIR,—Would an acre of dwarf trees bear as much fruit as an acre of standard trees? (I understand that dwarf trees should be planted ten feet (10) apart, and standard, about thirty five (35) feet, and is the fruit of the dwarf tree, equal to standard in size and quality? An answer through your journal, (If you have such data at hand) would oblige.

“AN AMATEUR.”

For the first twenty or thirty years probably the most fruit per acre would be produced by the dwarf trees, because they begin bearing so early; but afterward the advantage would annually become greater in favor of the standards.

In quality, the fruit grown on dwarfs is frequently larger and finer than when grown as standards; some varieties indeed being scarcely worth growing except as dwarfs, as for example the Duchess and the Anjou. In size the fruit grown on the dwarf trees is much the larger of the two—the checking of the wood growth having that effect in the case of the dwarf.

In planting a dwarf pear orchard it is wise to set the trees a little deeper than one would standards, because the quince root grows slower than the pear top, which may in time break off, unless set deep enough to throw out roots of its own.


Pruning is most important, for prolong-

ing the tip of the dwarf pear, for if allowed to grow tall and spreading, it will be early blown over by the winds, and the fruit will not grow to as large a size as if kept down to the pyramidal form.

To bring this about, the trees should be pruned to a single stem the first year, and this must be cut back at the end of the season or before growth begins the following spring, in order to develop strong laterals. How low to cut back depends upon the vigor of the stalk and can only be learned by experience, but it is necessary to get strong lateral branches about 10 or 12 inches from the ground. From year to year the pyramidal form should be kept in mind, shortening the leader and all side branches to an imaginary line, drawn from the outmost base to the top of the leader. After about eight years growth, the dwarf tree should have attained as large a size as is desirable, and therefore should be cut back, severely enough to continue it in about the same shape and form, the further pruning being directed to the shortening and thinning out of the fruit spurs.

With such attention as this, a dwarf pear orchard, if of the proper varieties, will prove an object of especial pride to the owner.

CROWN GRAFTING.

OME time since our friend Parker, of Nova Scotia, criticised the method of renewing an orchard, which we described, because it is so simple that any farmer, without special tools, or even grafting wax, can succeed in its performance. We did not advise it as the best way, but simply as a method which might serve in many cases where skill was lacking to do cleft grafting. The following extract from Garden and Field, of Melbourne, Australia, is in the same line, and shows we are not alone in this advice:

“Reworking old trees can be done in nearly as many ways as kissing a girl. The latter has nothing to do with the subject, but a reference to so serious a matter will indicate how much in earnest I am when I say to every fruit grower, cut down and rework every tree which is not of a first-class sort, or which does not pay to grow, and do it soon by crown grafting. Now, I am quite competent to advise on this matter, for I have read all about it like the experts do, and if that be not enough to establish my authority to an unbelieving world, I may say I have taught it just as a passionate parson has self-control; and if that be not enough, like George Washington, I must say aloud, I have done it myself. Joking aside, I have never had a failure on either stone or pip trees, and I have done the work from the beginning of August on the almond, to the end of October on the apricot. I think it is best to cut old trees off

clearly a foot from the ground, and smooth off the surface. Then insert back or crown grafts 1 in. apart all round. Tie a tight band of binder twine several thicknesses round, and apply grafting wax all round and over. If the operation be done as the tree is beginning to show leaf and the scions are dormant, nearly all will take, and the stem being protected from the sun by a bit of canvas, the bark will heal over the edges. The object of putting in so many grafts is to keep the bark lively all round, and to provide as many active growing buds as possible in place of the former tree top. I am sure that if a big tree has to be cut down this is the best way to reduce the shock as much as possible. The following diagram after Balat, shows how the crown graft is put in. It will be seen that the wood is in no way damaged. The graft, Fig. 1234, is shown with a shoulder; but I do not trouble about cutting one, and merely cut the scion with a long sloping cut, $1\frac{1}{2}$ inches long. The bark in Fig. 1234, as shown, is lifted too much.

Fig. 3, shows the grafts inserted and the stem bandaged. It will be noted that the bark has been displaced but very little.

The following is the method to be adopted. The tree is to be first cut down, say a foot above the place intended for the grafting. When ready to graft, a clean saw cut is made at the right place, and the surface smoothed with a sharp knife or spokeshave, especially all round the sap wood and bark.

To prepare for the scions a vertical slit is made through the bark about an inch in length, then

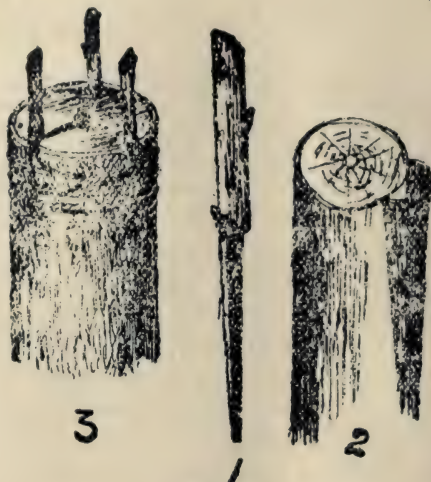


FIG. 2134.

with the handle of a budding knife or a piece of hard wood sharpened to wedge shape and smoothed, the bark is lifted from the sap wood enough to allow of the scion being inserted.

The scion having been prepared as shown, it is carefully slipped down in the place prepared for it, bound round, waxed, labelled, and the work is done."

FRUITS FOR THIRST.

CHEMICAL analysis would assign practically no nutritive value to the juicy fruits, for they consist of little more than a cellulose envelope containing a solution of sugar, the amount varying from 17 per cent., as with grapes, to about 1.4 per cent., as with lemons. The amount of water in fruit is considerable. In water-melons it is no less than 95 per cent., in grapes 80 per cent., in oranges 86 per cent., in lemons 90 per cent., in peaches 88 per cent., in apples 82 per cent., in pears 85 per cent., in plums 80 per cent., in nectarines 83 per cent., and in strawberries 90 per cent., not a fruit in the whole category con-

taining less than 80 per cent. The irresistible conclusion, considering these facts, is that fruit plays an important role in the diet as a thirst quencher. Certainly when fruits are freely represented in the diet less fluid requires to be consumed, and fruit would appear to be endowed with a subtle inimitable flavor which is ample inducement to imbibe fluid in this most wholesome form.

Moreover, the juice of fresh-cut fruit is perfectly free from microbes, is as sterile as freshly clean drawn milk, and the fruit acids tend to inhibit the power of those disease-producing bacteria which flourish in neutral or alkaline media.

DETECTING SAN JOSE SCALE ON FRUIT.

WHEN only a few insects are present on a tree the San Jose scale is not easily detected. If there is fruit on the tree, particularly apple and pear, the pest may be often seen long distances. On some varieties, especially light colored fruits, the characteristic purplish rings with the scales in the center are very conspicuous. The marking varies somewhat, but is not liable to be overlooked. On pear and apple it is very pronounced and fruit on badly infested trees is often mottled. The scale attaches itself to any part of the fruit; but is more abundant on the calyx end. At times there is a depression where the scale is attached, making the fruit very irregular if badly infested. The accompanying outline shows the scale markings on an apple recently received.

It is a peculiar fact that the scale seeks the fruit where there are only a few insects on a tree. When picking fruit, trees from which suspicious specimens are taken should be marked. They can be sprayed later and watched. I have known many cases where the scale has been first detected in an orchard on the fruit. The same characteristic purple

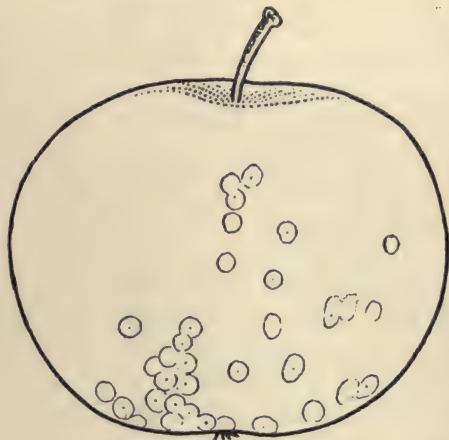


FIG. 2198.

spot is seen upon the bark of many young trees, and upon the newer growth of older trees. Some apples and pears are often attacked by a fungous disease, producing a circular reddish or purple marking similar to the scale spot. Care should be taken not to mistake this for scale. The presence of the scale in the center of the circle can be easily detected with a small pocket lens. It is safe to be alert and on guard all the time. —*Rural New Yorker*.

PRUNING THE CHERRY.

Could you give us in an early number a short article on pruning the cherry; there seems to be a great difference of opinion. Some advise heavy cutting out the centre of the tree top when young, others again say never put a knife in the top of a cherry.

Richard's Lancing.

CHAS. YOUNG.

The cherry tree is more susceptible of injury by injudicious cutting than most fruit trees. Large wounds do not readily heal; instead they often cause decay into the heart and early loss of vigor to the whole tree. Bark wounds even will cause the oozing of the gum, and often the death of the bark,

leaving the wood exposed to the action of the borers and weather.

Judicious pruning, however, of the cherry tree is just as important as with any other tree.

THE SWEET CHERRY CLASS

does not require much pruning; where the tendency is to throw up a long leader without many laterals it should be cut back to induce their growth, and these laterals will need similar treatment. The ideal form of the tree should be kept

in mind, and pruning directed so as to encourage it. These sweet cherry trees are naturally pyramidal in form, and this habit must of course be encouraged. Farther than this, the only pruning required will be the removal of branches that cross, and those that are dead.

THE SOUR CHERRY CLASS

on the other hand, form round bushy heads, and during the first three or four years the pruning should be directed toward securing this form. At time of planting the three or four top branches should be shortened to within four or five buds of their base, and four or five shoots encouraged to form the frame-work of the head. These must again be shortened the next year, and such secondary branches allowed to grow as will fill up the spaces and give symmetry. In three or four years a permanent form will have been secured, and it will only be necessary to remove superfluous growth from year to year.

The late Patrick Barry gave the following directions for

PRUNING THE CHERRY AS A PYRAMID.

The leader or stem is cut back to within six, eight or ten buds of the branches. Those having no branches are cut back to within six or eight buds of the stock, and this is the first pruning.

When the shoots have grown a couple of inches in length, such as are intended for permanent branches are chosen, and the others are pinched in the same manner as recommended for pears and apples. Such as acquire more vigor than is consistent with their position, must be checked. It frequently happens that, unless the leader has been cut back close, only three or four shoots will be produced at the extremity, leaving a vacant space below. This can be remedied in most cases by pinching the shoots around the leader when they have grown about an inch. In some cases it may be necessary even to check the leader to force the lower buds into growth. This is a point of considerable importance in conducting a pyramid, and should never be lost sight of.

PRUNING.—Probably one of the best tests as to a good knowledge of practical gardening lies in the manner in which the pruning knife is handled, for the deplorable effects of a lack of this knowledge are seen everywhere. The chief success in fruit-culture comes from the knowledge and the practice of judicious pruning. One has but to look at an ordinary vineyard, and the result of some good gardener's growth of grapes under glass, to see the wide difference between ignorance and knowledge. The good grape-grower under glass will use the pruning-knife so judiciously that the plants will be healthy and productive for a hundred years, bearing fruit as freely and as vigorously from near the roots as at the top of the vine. The grower on the garden trellis, or

on the side of a barn or building, finds his vines no good at the end of a few years. The variety he pronounces no good, and he rushes after every new kind to correct the results of his own folly.

One may travel through the length and breadth of the land and not find a case of sound pruning, and, at the same time, notice the weakness and decay in orchards everywhere,—all due to ignorance of pruning. There will be seen many cases where the owners understood this much: that pruning was a necessary part of a good gardening education—but not knowing anything of causes and results, they have rather hastened than arrested the destruction of their trees.—*Meehan's Monthly*.

TREATMENT OF THE STRAWBERRY FIELD AFTER PLOWING AND BEFORE RE-SETTING.

THERE are various methods of treating an old strawberry bed to get the soil in good condition for resetting it to strawberries, which requires not less than two years. When the strawberry bed becomes unprofitable it is plowed up, as soon as the crop is harvested. The straw is not burnt off unless it is so heavy as to hinder plowing. We usually mulch two-year-old beds also. The land is again plowed in the fall and seeded to wheat or oats the following spring. After the grain is harvested we apply manure at the rate of fifty loads to the acre. The land is then plowed immediately after the manure is spread. The next year corn is planted, without plowing. We go over twice with the cultivator and finish with the harrow. The ground is then in good condition for a crop of corn. In the fall when the corn is cleared off the ground, which we do as early as possible, we again plow, this time quite deep.

During winter we haul about eight loads

of soft wood ashes to the acre, which is put all in one pile on this land, and covered with to keep from leaching. Only soft wood ashes are obtainable here, but any amount of it can be had at two neighboring creameries and one flouring mill. The object of hauling the ashes in winter, is because time is too valuable in spring when the ashes are to be used. The ashes are easily distributed over the field with one horse and a road scraper and afterwards spread with a shovel.

In the spring before planting time, the ashes are spread and the land gone over with the riding cultivator until it perfectly free from weeds.


Of course the corn stubble is now on the surface and must be removed, but it takes one man with a hand rake only half a day to clear one acre. After this is done, the land should be gone over once with the harrow. The land is then ready for marking and resetting of the strawberry field. — *Report Minn. Horticultural Society.*

APPLE STOREHOUSE.

MY house for storing fruit is one that was on the premises and not built for the purpose. But I find it quite convenient. It is a stone building 26x34 feet, with good walls 2 feet thick, well laid in mortar. To make it so I could hold fruit through the winter, I lined it inside with matched lumber, making an air space of about 10 inches between the wall and lining. It is a two-story house. I protect from cold by putting straw on upper floor about 4 feet thick when settled. It kept the fruit well. I make a fire in it only three or four times through the winter, on account of extreme cold.


I could, with but little expense, make it good for cold storage by putting 8 or 10 12-inch galvanized iron pipes through the upper floor, letting them down 3 or 4 feet, and filling from above with crushed ice and cheap fertilizer salt. I have used it as it is, opening the doors nights to cool off and keeping it closed during the day, except when putting in more fruit. I pick and put in barrels in the orchard and store them open. In rainy weather I can sort and pack for market or cold storage, near market, by Nov. 15. I have seldom kept a crop over. — *H. Hill in American Agriculturist.*

USE OF CRUDE PETROLEUM IN ORCHARDS.

HE varying and sometimes disastrous results obtained from the use of refined petroleum on growing trees, as an insecticide, and especially against the San Jose scale, have led to the suspicion that the crude product might be less variable and drastic in its effects. But so far as it has been used it would appear that we yet have much to learn, before we can with safety, recommend the application of the crude product to the different varieties of fruit trees. That it is efficient in destroying the San Jose scale if it is brought in contact with this insect seems now quite probable. But the hundreds of dead trees that mark the areas where it has been indiscriminately used, point very clearly to the fact that great caution is necessary, and no one is, as yet, able to say just where safety comes and danger begins. Then too, when no permanent injury is apparent, as in the case of the seedling apples on the ground of the Ohio Agricultural Experiment Station, who can say that this unnatural retardation may not, after the first application, prove to

be a menace to the life or general vigor of the tree? It is well known that in nature these retardations sometimes occur, but nature seldom, if ever, covers the bark of a tree or shrub, and then only in part, with vegetable growths like lichens, and even these are known to be detrimental, a smooth, clean bark being always desirable. In the use of refined petroleum, one of the most perplexing phenomenon observed was the fact that, equally careful applications made by the same person, with the same grade of oil, would give almost opposite results. Hence recommendation of the refined product for general use has in many cases resulted disastrously and brought no little disrepute to the entomological fraternity of this country. The most that can now be said for the refined product is that a ten or twenty per cent mixture with water constitutes a fairly successful summer wash and destroys the young scale, thereby checking the increase and spread until applications of whale oil soap mixtures can be made.—
Prof. F. M. Webster, Ohio Experiment Station.

OUR COBOURG MEETING.

S we go to press we are more and more assured of a large and enthusiastic gathering. A large collection of Pan-American apples will be shown on the fruit table, many of them harvested in 1900. An interesting feature of the meet-

ing will be the announcement of the names of those Canadians who were fortunate enough to win medals and diplomas for fruit at the Pan, and each one will receive a beautiful banneret, in proof of the honor conferred.



SEASONABLE HINTS FOR GREENHOUSE, GARDEN AND WINDOW.

GREENHOUSE.—Keep the temperature from ten to fifteen degrees lower at night than in the day time. The temperature, however, should never be allowed to go below 45° or above 65° at night, whilst in the day time a temperature of from 60° to 75° will suit a mixed collection of plants very well. Plants require rest at night, a slightly lower temperature assists materially in this respect. Over-anxiety to keep out the frost at night is often the cause of a higher temperature being maintained at night than in the day time. This is injurious to plant life, as it induces a weak, spindled growth, that invites disease as well as a bountiful crop of insect pests.

When potting plants press the soil firmly around the roots of the plant without injuring them. Allowing the soil to remain quite loose around the roots is not conducive to quick root action and subsequent healthy top growth.

A moist atmosphere, induced by frequently sprinkling the floor of the greenhouse as well as syringing the foliage of the plants early

in the day on fine sunny days, will prevent the ravages of red spider. Sprinkle the floors at least once a day regularly, and syringe once or twice a week.

Carnations, roses and fuchsias, are particularly liable to attacks of the minute but destructive little red spider. A moist atmosphere does not suit the red spider.

Water all newly potted plants once thoroughly, and withhold water until the soil shows signs of becoming dry again. If the plants wilt a little, shade them from the sun for a few days, and perhaps syringe the foliage, but do not keep the soil in the pots soddened with water, thinking it will revive the plants. Too much water given to newly potted plants before root action has well started, will often destroy them.

THE GARDEN.—Mould up the tender varieties of out-door roses before severe frost sets in. The earth should be thrown up around them so as to cover six or eight inches of the stem, and the mound patted firmly around so that it assumes a conical shape to pitch off any moisture from around the plant. A further covering of long

strawy manure later on will also be of benefit, especially if there is no snow to protect the plants.

Newly planted bulbs should have a mulching of strawy manure applied before hard frost sets in. In fact all newly planted trees or shrubs, as well as bulbs and perennial border plants, will be benefited by some light protective material if they are at all tender.

Lilies of all kinds planted out of doors should have a good mulching of manure in winter, more especially the Japanese varieties. *L. candidum* and *L. tigrinum* are hardier, and as a rule require little or no protection. A mulching however will benefit them, as it acts as a fertilizer as well as a protective material.

THE WINDOW.—Retain as moist an atmosphere as possible around and about the plants, and careful intelligent watering at the roots, are the principal features of window-garden work during the winter to attain success.

The following varieties of plants are amongst those that require only a very limited quantity of water during the winter, viz. : cactus of all kinds, agaves, aloes, hydrangeas and oleanders. Rex begonias require only occasional watering during the winter, and should never be syringed overhead, as the spiny rough construction of the surface of their leaves retains the moisture to such an extent as to rot and destroy the leaves. All summer-flowering begonias require comparative rest during winter. A limited supply of water induces partial rest in plant life. Callas, cyperus, cinerarias, cyclamen, genistas, and all growing plants must never be allowed to become dry at the roots at this season.

Holland and all spring flowering bulbs require plenty of water, after the bulbs have made a good supply of roots. Newly potted bulbs require to be watered thoroughly once when first potted. If given the proper conditions to make root in, viz. : a cool, moist, dark situation, they seldom

require water until top growth commences and the bulbs have secured a good supply roots. Securing a good supply of roots before top growth commences is very necessary, if you wish the bulbs to produce the best flowers possible. After the top growth has well started bulbs should not be allowed to become dry at the roots.

Give liquid manure very sparingly to plants during the depth of winter. In February or early in March a little fertilizer may be given them to advantage.

Freesias require a fair supply of water, and must not be allowed to become dry when once top growth has well started.

Watch out closely for attacks of insect pests. A little weak tobacco water, or an application of some of the prepared insecticides sold by seedsmen, should be given plants every week or two during the winter. Give the application in a weaker form than is usually recommended. Weak applications, frequently applied, before the insects appear, will be far more beneficial as preventatives than heavy doses will be as a curer if left until the plants are infested with insects before it is applied.

Hamilton.

W. HUNT.



FIG. 2200. *ARUNDO DONEX*, GROWN IN QUEEN VICTORIA, NIAGARA FALLS PARK.

(See page 518.)



FIG. 2199. A GROUP OF TROPICAL PLANTS IN QUEEN VICTORIA, NIAGARA FALLS PARK, DURING THE SUMMER OF 1901.

THE EULALIAS.

IN a late number of your journal you proposed securing for your members *Rudbeckia purpurea*. I tried to grow it at the Falls and failed. I blamed it to the plant being rather tender; if so here, then it would not give satisfaction in other parts of the province. How do others find it? It may be that the excessive moisture here does not suit it.

In place of *Rudbeckia purpurea*, I would recommend some of the *Eulalias*, of which there is a number of varieties, and I am sure all that went to the Pan American this summer could not fail to take notice of the beautiful bed of them there. In my estimation it was the best bed on the grounds, and it contained *Eulalia zebrina*; *Eulalia Japonica*; *E. Japodica variegata*, and *E.*

geacillinia; *Gynerium argenteum* or Pampas grass of South America; also *Arundo donex*, of which there is a variegated variety. (See Fig. 2200.) I inclose you a photograph of the green one if worthy of notice. The above bed was bordered by the beautiful *Pennisetum ruppelianum*, which is grown from seeds in the early spring, although they can be kept in a greenhouse and divided by the roots in the spring. There are other similar plants that could be added to this collection, such as the Bamboos—the common, the golden and the variegated—and even the sugar cane and many others. Again what is more beautiful than a few individual plants of the above standing or planted here and there on any lawn?

Niagara Falls.

R. CAMERON,

HERBACEOUS PLANT NOTES.



THE fall planting of perennials should be attended to as soon as possible; delay until colder weather sets in is not advisable, because the plants may not then have time to form new roots and establish themselves firmly in their new quarters before hard frost stops their growth. Many of the hardiest and coarser growers may occasionally come out all right when planted late, but with the more delicate dwarf species we should always be most careful. When plants have not taken a firm foothold in the soil the frost will lift them, exposing the crowns and often a part of the roots. Mulching and shading the beds will act as a preventative against this evil and it is advisable to apply this mulch to all fall-planted stock, even to the early plantings.

Dividing into very small pieces should never be practised in fall. Rare things are better left alone until spring, when they may be divided into single eyes if necessary, with much more safety. All plants which form soft, thick, fleshy roots are more liable to decay over winter when mutilated by division; therefore, it is better to wait with this operation until next April or May.

Grasses like eulalias and erianthus, do not usually take kindly to transplanting during the fall months; neither do the hybrid pyrethrums, especially when the clumps are to be divided. When plants have been specially prepared for fall planting, by dividing in spring or early summer, it is quite a different case. We then have small clumps, which in most instances can be taken up with a ball. Their roots are not mutilated by division and they quickly take a firm hold in the soil. With such young

and vigorous material we run no risk of failure and are enabled to produce a fine show in a bed, the border or a rockery in the coming season.

Primroses, auriculas, campanulas, aubrietias, veronicas, helianthemums, aquilegias, silenes, lychnises, iberises, alyssums, hepaticas, lobelias, omphalodes, polemoniums, rudbeckias or arabises and a host of other things may be used to advantage for planting in beds by themselves or intermixed. Some of them can remain in their places for a number of years undisturbed; others, if so desired, may be removed after flowering to make room for other plants.

For refilling these vacancies we need not necessarily rely on bedding stock of other potted plants. Many of our later blooming hardy plants will bear removal after growth is considerably advanced if we are a little careful with them. I have successfully moved heleniums, phloxes, helianthus, boltonias, cedronellas, lythrums, asters, rudbeckias, veronicas and others in July and August, while in full, vigorous growth. Two or three very liberal waterings assisted materially in the speedy recovery of the plants; the soft tips invariably stood erect by the next morning and remained in that position without any further attendance.

Of course all these plants were dug up carefully with a ball of earth, otherwise they surely would have suffered more or less, and where the plants have to be a long while out of the ground or transported to a distant point it is out of the question to refill beds in this manner, but in most places where perennials are grown in quantity such stock for this purpose is nearly always available.—*American Florist.*



FIG. 2200

SOME ATTRACTIVE CACTI—II.

IN the October issue, a few of the different families of Cacti were mentioned, with a very short description of some of the most attractive members in each, and in this article some other branches of the species will be taken up. First, there is the small family of Anhaloniums, consisting of some five varieties. Foremost among these is *A. fissuratum*, the "Living Rock." This great curiosity has more of the appearance of a finely carved piece of stone than of a living plant, the shell having a hard surface, and the bright, purplish flowers come as a surprise from such an unlikely looking quarter. This is an extremely curious and wonderful plant, and lives where sometimes no rain falls for two years. It will stand any amount of drought, but too much water, while the plant is dormant, will soon cause it to rot. It generally blooms soon after being started growing, when imported from its native soil, and given favor-

able conditions. Besides this one there is a smaller species, and much rarer, *A. Sulcatum*, which is a quite persistent bloomer, having pretty purple flowers. *A. Prismaticum*, grows larger than either of the others, and is of a different formation, the parts which stand for leaves being hard and smooth, tapering to a small point. The flowers are also very much larger and finer, being about two-and-a-half inches across, of a white shade. This is highly prized by all collectors, it being scarce even in its natural home. Two other varieties, *A. Lewini*, and *A. Williamsii*, are called "dumpling cactus," from their appearance. They are round, and composed of a fleshy substance, having a long turnip like root. They bloom very freely, the flowers being of a light rose color.

A family of Cacti, among which are some well-known and commonly grown sorts, as well as a very large number of beautiful

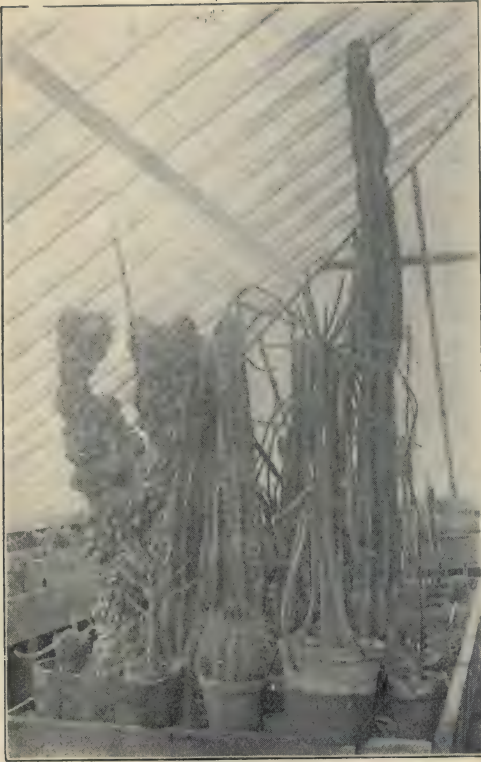


FIG. 2201. CEREI GROWN BY MR. CALLANDER.

sorts which are very seldom seen, is the *Cereus*, in its greatly varied style. This species comprises forms that differ very much in style of growth, from the slender *C. flagelliformis*, which grows in hanging baskets, and is called the "Rat-tail," to the immense *C. giganteus*, the giant of the Cactus family, which reaches the height of forty to fifty feet. There are so many attractive *Cerei*, that in a short general description, it is hard to tell which to describe. The best known, perhaps, next to the Rat-tail, is the *C. grandiflorus*, or Queen of Night. This is a slender climber, the young growth of which is quite handsome, but it is the flowers of this, and all the other climbing varieties, that are their special feature. These are indeed grand, and form a

notable attraction wherever seen. Some of them are nearly a foot across, and very fragrant. Nearly all are white, though one or two are said to be pink. In Alston's greenhouses, Winnipeg, there is a large plant which blooms regularly, and a notice put in the paper that a flower is expected to open that night will bring hundreds of visitors to see it. There is a noted plant in California, which grows all over one side of the house of Mrs. Shepherd, Ventura-by-the-Sea. It is *C. triangularis*, and annually bears great numbers of enormous and beautiful flowers. Some of the stouter stems of these climbers being of very fast growth, are used for grafting other slower growers on, and this makes a very interesting study. Some very curious effects can be produced by this process, and the different varieties readily lend themselves to the work, and quickly unite and commence a rapid growth on the new stock. The favorite trial with amateurs is to take a well rooted and growing stock of *C. Colubrinus* two feet high or more, and graft on it two or three small pieces of the Rat-tail cactus. It is surprising how quickly this will form a head of long drooping stems, which also flower very freely when grafted. A fine specimen of this is shown in the front



FIG. 2202. ANHALONIUM.

of the group of tall cerei shown in the photo.

Another successful graft is to use a good strong stock of *Pereskia*, and on it graft an *Epiphyllum* or "Crab Cactus." This also, soon makes a fine specimen, and flowers better than on its own roots. Globular varieties grafted on a stright stem of *Cereus* are also very odd, and make a tremendous growth. It is in this way also that the Monstrosities are increased, as a smals piece will unite and soon made a large plant that is very valuable. A branching stem is often grafted with several different varieties, and the effect of these all growing on the same root is most peculiar. Indeed, grafting is the most interesting part of a Cacti collector's care of his plants, and it is very easily done if both scion and stock are in a good growing condition.

On the left of the cerei illustration will be seen a very curious form of *Cereus Peruvianus* which has no centre of growth, but is a solid mass of crowns, and growth starts anywhere, making the stem of all kinds of

grotesque shapes. The one in the photo is an extremely fine plant over three feet high, and fourteen inches across the top.

A specimen of the tall heavy growing style of cereus is always a great attraction, on account of its being something out of the common. *C. coerulescens*, is a beautiful sky blue color, and makes an imposing plant. *C. pugioniferous* is chiefly noted for its very long and stout spines. *C. pasacanus*, a rare species, has an almost black stem, and long deflecting spines. Then there is the great *C. giganteus* of Arizona, and Lower California, which is like the trunk of a large tree, and grows forty to fifty feet high. This also branches sometimes, but the small specimens seen in green-houses give a fine idea of the giant in its desert home. The *Cereus* family is a very numerous one, but mention can only be made of a very few here, and there still remains many other families to discuss, and find the attractive members of.

J. H. CALLANDER.

Woodstock, Ont.

HEDGES AND MARGINS OF LAWNS.

MUCH of the beauty and effectiveness of lawns surrounding city and suburban residences is oftentimes greatly marred and in many cases lawns are made decidedly unpicturesque from the fact that unsuitable and inappropriate plants and shrubs—and perhaps trees—are used to form a margin or dividing line between the lawn and its surroundings. Or even worse than this, a close board fence can often be seen without apparently any attempt having been made to hide its bareness from view. When this is the case it detracts very much from the general appearance of the lawn, however nicely the latter is kept, or embellished with plants or other decorative material.

One often sees on lawns of very small dimensions, a row of Norway spruce or per-

haps of strong tall growing cedars planted where a row of dwarf growing evergreen or flowering shrubs would be much more attractive and pleasing than a pine or cedar hedge, as the latter oftentimes present a decidedly rusty looking appearance, especially after undergoing the annual clipping process, so necessary to keep them within reasonable bounds. I am aware that the class of trees just mentioned are sometimes necessary to be used as wind-breaks or shelters for lawns. For this purpose they are most effective but the proper place for them is a distance away from the grass plot, where they cannot devour all the nutriment from the flower beds or borders, in such a position that they will have room to grow and develop into beautiful specimens, and where their stately growth and graceful

outlines can be seen to the best advantage. As dividing lines on small lawns, or even as single specimens, tall growing pines and cedars are decidedly out of place and inappropriate, as they either have to be allowed to grow and overshadow and perhaps destroy everything within the reach of their hungry absorbing roots, or their growth has to be clipped and their roots pruned back to prevent them destroying all other plant life growing near them.

There are however many dwarfed growing evergreens and conifers other than those mentioned, that are more suitable for planting on or around small lawns either as dividing lines or as single specimens, where an evergreen hedge is considered to be a necessity. Amongst the best and most easily obtained from nurserymen are the dwarf growing Thuyas or Arbor Vitae, the varieties *Thuya Hovey* and *Thuya occidentalis compacta*, being probably the hardiest and best of the varieties to be had. Many of the Japanese varieties of the *Thuya* and *Cypress* are more ornamental than these native varieties, but are not nearly as hardy, and are much more expensive to purchase.

Amongst flowering shrubs suitable for planting as a hedge around a lawn is the pretty little dwarf growing *Spirea*, *Anthony Waterer*. This shrub is probably not sufficiently hardy in the more northern section of Ontario, but in Southern Ontario it succeeds splendidly, and when covered with its bright pink blossoms, as it is generally from July until October, it has a very pretty effect. One only has to see this plant growing in nursery rows to form an idea of its suitability for a dwarf hedge around a lawn. The *Spirea Bumalda*, and the white variety of the same class (*Spirea callosa alba*) would also be very effective for the same purpose. The stronger growing *Spireas* such as *S. van Houtii*; *S. Douglasii*, and *S. Billardii* and the several similar types of

these plants, are not as suitable for planting as hedges or dividing lines. Only recently I saw a hedge of the bridal wreath *Spirea van Houtii*, planted around a lawn as a hedge, that had probably when first planted been very pretty and effective, but owing to its habit of growth it had of necessity to be clipped to keep it within bounds, making it very little better or prettier than a hedge of the common *Osage Orange* or *Honey Locust*. Some of the herbaceous *Spireas* would be found very suitable to use as dividing lines or as hedges around lawns, amongst them being *S. auruncus* and *S. ulmaria alba plena*, the latter being the most suitable of the two.

Amongst the *Deutzias* the most suitable would probably be the popular little dwarf variety *D. gracilis*, and the newer variety *Deutzia Lemonei*, although the high price of the latter at present, will probably prevent its being used very lavishly on lawns for a year or two.

Another very pretty shrub is the *Berberis Thunbergii*, its hardiness and dwarf growing habit making it particularly suitable for forming a low growing hedge.

Amongst herbaceous perennials that can be used very effectively for the above purpose and that are hardy and not expensive, is the old fashioned *Bleeding Heart* or *Dielytra spectabilis*. A row of these plants has a most beautiful effect, especially when in flower, on the margin of a lawn during summer. The German and Siberian *Iris* are also very pretty and effective for marginal lines. These latter could be mixed so as to give quite a variety of color when in flower. The foliage of the *Iris* is also quite ornamental, if the rows or clumps of roots are kept compact and trim. The dwarf growing *Iris pumila* is very useful for forming marginal or dividing lines on very small lawns as it grows only to a height of eight or ten inches.

Both the *Hemerocallis flava* and the

dwarfer growing variety *H. Dumorterii* can also be used very effectively as line plants, both varieties are hardy and very showy when in flower.

The *Yucca filamentosa* is often used for the above purpose also.

The common ribbon grass (*Phalaris arundinacea variegata*) makes a splendid marginal plant for a lawn, and it is both hardy and inexpensive.

The introduction during recent years of so many new and desirable shrubs and perennials suitable for marginal lines or hedges on lawns, makes it comparatively easy to make a selection that is both pretty and useful, without confining oneself to pines or cedar, or the almost evergreen privet for this purpose.

Hamilton.

W. HUNT.

THE MOCCASIN FLOWER, OR LADIES' SLIPPER.

LADIES' Slipper is not a word in keeping with hemlock and beech woods, but the word Moccasin throws meaning into the black shadows, and brings to mind the stone axe and flint arrow-heads found not long ago on the edge of a newly-plowed field, that was but recently a piece of these same woods.

"With careless joy we thread the woodland way
And reach her broad domain,
Thro' sense of strength and beauty free as air,
We feel our savage kin;
And thus alone, with conscious meaning, wear
The Indian's Moccasin."

We stopped at a point where a pair of chestnut stumps indicate the entrance to a wood road whose guardian gate-posts and rails now lie among the ferns, keeping shape until touched, and then separating into an intangible powder, half dust, half wood-mold.

On this bank, peeping incautiously from between Bellworts and the black stalks of a little forest of damp and only half-opened fronds of Maidenhair Ferns, was a single Moccasin Flower of unusual size and height, its pouch of an almost crimson hue.

It stood like an outpost, commanding a view both up and down the shady road. I straightway picked it, carefully wrapped its stem and leaves in damp moss, and hid it in

the depths of the chaise tops; for, thought I, if, to-morrow being Saturday, any of the people coming down from the back country spy this flower, somebody will surely put two and two together, follow the trail into the woods, and make the whole colony prisoners. And among all our native Orchids this Pink Moccasin Flower is the most hopeless to transplant, as away from its haunt in a year or two at most it pines away, appearing to find some unknown quality in its natal soil with which it cannot be supplied.

Within the wood edge pairs of leaves and single flowers soon become more frequent, but these sank to insignificance when I came in sight of the first tree bowl. There the Moccasins were holding a woodland flower market of their own, peeping over each other's shoulders, crowding the edges of the leafy hollow, straying from the sides and clustering in the bottom, facing this way and that, wearing every shade of color from flesh-white through pink to a deep, veiny purple, and all nodding and swaying as they were continually jostled by the eager bees who came to make their purchases of pollen and nectar.

Notwithstanding the great attraction that a Pink Moccasin Flower in the hand offers

us from its oddity, it is certainly much more beautiful in its haunts. There the paler flowers counteract the somewhat veiny quality of the deeper, and the soft browns of the hemlock-strewn ground act as a setting to the whole, together with the surrounding air of mystery making it one of the half dozen New England Orchids for which true landscape value may be claimed.

Hereabout it is the earliest comer of the tribe. Oh, no! I am forgetting that there is one of another household still earlier, the Showy Orchis, which pierces the mold with its lily-like leaves in late April or early May, in company with Wake Robin, Bloodroot, Anemones, and Yellow Violets. Even Time o' Year does not know its haunt in the deep woods beyond Lonetown on the Ridgefield road, where I cherish a few plants of it, so rare is this region, by letting them alone in the hope that they will increase, and that the seed may be borne to neighboring woods.

This Orchis is most precise in its equipments, and when in its first perfection of bloom, it seems like an artificial plant of wax from its broad leaves, sometimes six inches in length and damp to the touch, to the tip of its spike of half a dozen spurred, shaded purple flowers with broad white or violet tips. Where it is common, it often gathers in crowds like the Moccasin Flowers or Fringed Orchises, but with the few rare plants of my discovering, each kept its distance from the other, as prim as children made ready for a party, who sit perched on chair edges in constrained attitudes to keep finery untumbled until the moment for departure comes.

In common with many of the tribe the Showy Orchis has, on opening, a delicate earthy fragrance that turns to a decided muskiness after the fertilization of the flower; a perfume inseparable from leaf-mold blossoms to whatever tribe they may belong. One quality it lacks, and that is graceful-

ness. If its flower-stem grew longer before the buds opened, so as to raise them well above the leaves and give the wind a chance to sway and bend them, the primness would vanish, and the Showy Orchis be captivating indeed. At present it reminds one of a lovely woman with so short a neck that she cannot turn her head.

Another Moccasin Flower, a taller cousin of the Pink, has sent a few venturesome pioneers over the hemlock ridge to test the climate and soil on the coast side of it, for this family needs bracing air and usually keeps well away from salt water influences.

The Yellow Moccasin, or, as the French call it, *Le Soulier de Notre Dame*, comes in flower as the Showy Orchis passes, and precedes the exquisitely painted Showy Moccasin Flower, whose splendid rose-and-white blossoms, often two on a stem, seek high places and are seldom found in abundance south of Maine, New Hampshire and Vermont. It is called *Regina*, for it is queen of a princely family.

The Yellow Moccasin is a striking flower of the high shaded woodland landscape. The uncleft shoe itself is of a clear smooth yellow, veined with purple; the other two purplish petals hang as twisted strings, with a hood-like sepal arching between. The flowers, singly or often in pairs, are raised upon a stout, leafy stalk a foot or two above the ground, clearing the more woody undergrowth which serves as a background to deepen their color.

How the eye loves to linger upon yellow flowers! Of the three primary colors, yellow always seems to me the most harmonious under all conditions, from the first Marsh Marigold to the last brave wand of Goldenrod. Even after hard frosts, the same cheerful color wraps the low thickets wherever Witch Hazel blossoms, giving the landscape, through this last flower of the season, a forecast of the willow tints of early spring.


Roughly speaking, without attempting a

census, it seems to me that taking the year through, the majority of landscape flowers are yellow. At least, such species as wear this color grow in greater abundance than those of other tints. And if the strange yet plausible theory of Grant Allan be true, that all flowers were originally yellow, but that

in the processes of evolution they have experimented with other colors only to work back again to the original hue, it is easy to account for the plentifulness of this color.

NOTE.—This is a selection from Mabel Osgood Wright's recent work, *Flowers and Ferns in their haunts*; from the chapter entitled "Some Humble Orchids."

SENDING FLOWERS THROUGH THE MAILS.

ENDING flowers through the mails is a pretty sentiment and often a source of delight to the recipient, especially when the flowers are of a new variety and sent from a long distance by a traveler in token of the places seen and visited. The object of this sketch is to give a few hints as to the best way to pack them to insure the certainty of keeping fresh and fragrant.

Let us suppose that pansies and lilies of the valley are to be arranged for transportation through the mails. A small pasteboard box must be procured and lined with cotton wadding moistened with water; over this make a bed of the leaves from the lilies, and upon these leaves place the flowers. Much taste may be displayed in the arrangement, and upon opening the box the effect will be quite the same as that of a bouquet. Cover the stems of the flowers with damp moss in such a way that they will be firmly imbedded, and thus kept fresh for a long time. Before putting the lid upon the box sprinkle the flowers and place a covering of leaves over them.

A friend who received a box of camelias from Georgia, reported their arrival in perfect condition. Their stems were laid in freshly cut potato. Some florists wrap oiled paper or tinfoil about flowers when all has been done to prevent the escape of moisture. I have received roses packed in their own leaves in a perfect condition after several days.

At Christmas time flowers are a very sweet remembrance for the friends to whom we dare not send anything of more pecuniary value, and a would-be lover may express volumes in the selection of a box of these dainty things for the lady to whom he has not yet made an avowal of his affection.

In winter, flowers are more easily kept moist than in summer, which is the main point to be achieved in sending a long distance.

An excellent authority gives the advice to plunge the stems of wilted and drooping flowers into hot water to about one-third their length, taking care that their blossoms are untouched. This process drives the "sap" back into the flowers, and causes them to revive in a short time, unless already hopelessly faded. Cut away the withered portion of the stem before putting into cold salted water or wet sand, which is better for vases and dishes in which flowers are to be kept, because it will preserve them longer.

Do not gather flowers while the sun is shining upon them, but choose instead the early morning or the hour after the sun has gone down. Avoid pulling or tearing from the plant; cut with sharp scissors or a knife, and in the case of varieties having a large stalk or stem, rub a little dirt over the wound. Always leave as long a stem as possible, not to interfere with other buds or blossoms.—*Jenness Miller in Household Companion.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 15th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters while it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc., but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

NOTES AND COMMENTS.

THE FLORISTS OF HAMILTON have recently organized with Wm. Hunt, President, and P. Lawson Secretary.

MEDAL FOR HORTICULTURAL LITERATURE.
—Among the medals awarded at the Pan American, we notice one to the Ontario Fruit Growers' Association, for an exhibit of horticultural literature. This was given for a set of bound and unbound copies of The Canadian Horticulturist which the writer forwarded to Mr. Bunting for exhibition.

We have reason for congratulation over this since this is the only medal awarded for horticultural literature. We also obtained a medal and diploma at the World's Columbian Exhibition for the same.

CONTRIBUTORS FOR 1902.—Our readers will be pleased to know that several talented writers will contribute to these pages during the coming year, and among those who will

write a series of articles we have: F. C. Sears, Professor of Horticulture, of Acadia College, Wolfville, N.S.; H. L. Hutt, Professor of Horticulture, Agricultural College, Guelph; W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa; Wm. Hunt, Professional Gardener, Hamilton, Ont. Besides these there are many others who will contribute occasional articles. Our readers may therefore expect a series of excellent issues of this journal, which we hope will be of great public benefit.

AT THE FIFTH ANNUAL MEETING, the American Park and Outdoor Association, at Milwaukee last June, Mrs. Seavey spoke on encouragement of local improvement work, such as might be done by local Horticultural societies, as follows:—

Your committee suggests, (1) that improvement societies are the already existing nuclei from which great transformations should result; (2) that im-

provement work should be submitted to business men as a business proposition; (3) that the hygienic disposition of household waste is a paramount question that should be considered by every improvement organization; (4) that bad conditions in cities are the logical out-growth of bad conditions in towns, villages and in the country, and that these should be traced to their sources and preventive and remedial measures instituted all along the line; (5) that interested assistance is likely to follow definite statements of bad conditions if accompanied by a clear outline of practical means for overcoming them; (6) that twentieth century intelligence, admitting that the whole is greater than its parts, plans in a large way before executing details; (7) that large aims and earnest work bring their own reward, and lastly (8) that if one person present absorbs the notion that it would be vastly fine to line every approach to the home town with red bud, and wild crab, and wahoo and invite the birds and the squirrels to live in them and—goes home and does it—your committee will feel that “it has done what it could.”

We would advise our Horticultural societies to correspond with Mr. W. H. Manning, landscape architect, 1146 Tremont Building Boston, who is secretary of this Association, for terms on which each society could become associated and receive the reports.

ONTARIO'S TRIUMPH at the Pan-American is indeed a matter for congratulation. “Our display in fruit,” said the Hon. John Dryden at the Horticultural Building one day of the closing week of the Pan, “has been a revelation to the Americans, and, in some respects, to ourselves. Few Canadians un-

understood, prior to this Exposition, the great possibilities opened up by cold storage in connection with fruit production. Here are apples, of last year's crop, still in perfect condition at a time when our winter apples of this season's growth are already matured. This means that apples which have heretofore been sacrificed in the fall can hereafter be held without loss in quality until a fair market is obtained. Some fear this will mean transferring the crop in the fall from the hands of the producers to those of speculators, and that dealers rather than growers will thus reap the principal profit on our staple fruit crop. But there is no reason why this should be. The law provides a ready means for the establishment of co-operative cold storage depots, and the Provincial Treasury can even be drawn upon to assist in construction of the same.

“Our fruit display has also impressed thousands and thousands of strangers with the capabilities of our Province in this line. The only mistake we made was not realizing soon enough the advertising possibilities in the Pan-American. We should have prepared a year in advance for the work undertaken. Even as it is, we have more than held our own, and have convinced our friends across the lines that we have both the quantity and the quality in fruit.

APPLE REPORTS.

MESSRS. Woodall & Co.'s report, dated Liverpool, October 19, is not very encouraging to shippers and leads us to infer that better money can be made by sales at home than abroad:

The arrivals this season to date are 32,545 barrels, against 83,772 during the corresponding period last year, and it would appear that the crop is the smallest for some time past. The prices realised so far, except in a few instances, are anything but

satisfactory; and it is the same old story, that early fruit mostly arrives in doubtful condition, and, even if sound, does not show sufficient superiority over the home crop—which is marketed at this time—to command remunerative prices. There has been an enormous crop of stone fruit, which interfered with the demand for apples. The results are, no doubt, disappointing, but only what was to be expected, and it is no criterion as to what really good sound winter

stock will bring; there is little doubt such will realise a high range of prices, provided the quality is attractive. It however often happens that a small crop is caused atmospheric conditions unfavorable to the keeping quality and development of the fruit, in which case disposal on the home market is the better policy. Arrivals have been from all shipping ports, including Nova Scotia, and the above remarks apply to one and all. A special feature is that Canadian Snows are again arriving mouldy, and consequently sell at a wide range of prices, but mostly at very low rates.

A fair quantity of Virginian Albemarle Pippins has arrived, but, so far, are most unattractive, being green, dull, and, in

many instances wormy and spotty, and quite unsuitable for a fancy trade; consequently buyers would not give them attention, and they were moved with difficulty at low prices.

A small lot of boxes Californian Newtons, retailed at 12/6 for 4 tiers.

Cable Report of London Market, Nov. 8th, 1901, by F. A. O'Kelly & Co.: Nova Scotians, Kings 18s to 22s, Ribstons 15s to 20s, Blenheims 17s to 21s, Culverts 14s to 20s, Newtown Pippins 30s, strong demand for best quality, Keiffers 10s 6d to 18s according to quality, California Newtons 9s to 9s 6d.

QUESTION DRAWER.

Whale Oil Soap.

1261. SIR,—Can you let me know through the next journal where I can get whale oil soap, and at what price per lb., as I wish to try some this winter. I hear that the San Jose Scale is coming this way from Kingsville, where they have it very bad. Yours respectfully,

M. G. BRUNE,
Olinda P. O.

Essex Co., Ont.

J. G. Ward, Consecon, Ontario, manufactures whale oil soap, and will be glad of your order.

Also better consult Mr. Geo. G. Foster, Burlington, Government Inspector, of San Jose Scale.

Oyster Shell Bark Louse.

1262. SIR,—When is the best time to spray, and with what material for the oyster shell scale? Does fall, winter, or early spring spraying have any deterrent effect on the aphids on plum and cherry?

St. Thomas, Ont.

A. W. GRAHAM.

The best time is about June 1st, when the young lice are leaving the cover shell of the old mother, and trying to find a new spot on which to raise a colony.

Apples for Oxford County.

1263. SIR,—I intend to plant a couple of acres of apples for commercial purposes and to fill in the rows temporarily with small fruit or early bearing apples.

How would Baldwins, Northern Spy, Ontario and Ben Davis do for permanent trees?

Is the Cranberry Pippin, which I see you recommend for export, suitable for this district?

Would you plant Wagener in between the others? What others would do for the same purpose?

I have taken the Horticulturist for nine years now and enjoy reading it very much. Yours truly,
Embro.

D. M. Ross.

The varieties you mention are well chosen as permanent trees in your orchard; the Cranberry Pippin is a little uncertain, and we would not like to recommend it too highly. At Maplehurst, with good cultivation and fertilizing, it grows larger than Ben Davis, and fully better colored, and as the background yellows in midwinter, it is especially attractive. But if at all neglected the fruit becomes warty, a blemish to which the Ben Davis is not subject.

We would not plant Wagener or any other apple tree between the regular orchard

trees because they would yield so little fruit before they would need to be removed.

If it is desirable to make the ground pay the expenses of cultivation, we would advise growing small fruits or some other hoed crop.

The Honey Bee.

1264. SIR,—Are the days of the bees numbered? It would seem so from what we read about them in your last issue of the *Horticulturist*, page 470. Would it not be well to cover a few trees altogether with sacking or mosquito netting and such varieties that are most subject to the disease, such as Winter Nelis, Flemish Beauty or White Doyenne, in place of covering a branch on the tree. The branch covered might be the only one on the tree or trees that might escape if not covered while if the whole tree was covered and then the disease took hold there would be a reason for be-

lieving. A simpler way would be to send the bees away to the Klondike for a season, or some other place and prove the innocent creatures guilty. My belief is that the death blow is very simple to the blight such as recommended by J. J. Graham to produce an apple crop (page 487 your last issue) or a similar one, such as proper pruning, moisture and the suitableness of the soil and its cultivation. Why does not the bees introduce the disease to the Keifer, Buffam and others we could mention.

R. CAMERON.

Since the bees can only carry blight from tree to tree during the brief season of blossoming, it is a very easy matter to see that no blighted trees be allowed to bloom. Such trees should be carefully cut out and burned before that season, and then the innocent bee will be perfectly harmless in regard to the spread of blight.

Open Letters.

Rufus.

SIR,—I am sending you some specimens of the Rufus apple, a seedling which originated at Perth, Ont., in the garden of Lt.-Col. Matheson. I have sent some specimens to Hutt also, as I thought it was promising enough to mention in the report on new fruit.

W. T. MACOUN,
Horticulturist C. E. F., Ottawa.

This apple is rather attractive in appearance, of medium size, conical, covered with bright red, and dark red on sunny side.

The flesh is white, tinged with streaks of red, crisp, moderately juicy, and very agreeable flavor.

Horticulture in California.

SIR,—I am immensely pleased with California; its scenery, climate and flowers and fruits. It is indeed a country of extremes, high snow-capped mountains enclosing beautiful verdant valleys, flowers of all kinds, roses more especially. Cacti grow in abundance in the Mojane desert, only 20 miles from here, and you may imagine how I am in my delight. Even now at this late date we are picking strawberries from a patch that has been producing without intermission since last March, the Jessie variety. Grapes here produce and ripen three crops a year, but are not of the same variety as in Canada; one kind is entirely seedless and very nice. They sold well here last year, sales averaging \$30 per ton on the vine. Nearly all grapes are used for wine or raisin making. There is an immense amount of fruit of all kinds dried in the sun.

Fruit here, although of the same varieties as with you, Bartlett pears, Crawford peaches, etc., appear to have quite a different texture, and if not picked will not rot but simply dry up on the tree. Surely it is not on account of lack of moisture, as here we irrigate our orchards once a month most thoroughly as water can be had at all times and is very cheap too. The melted snow from the mountains is the only source we get it from. There are many kinds of peaches and plums here that I think would be profitable with you, also of grapes. I shall be pleased to mail you scions if you should wish them. We are having beautiful weather now and have only had one rain since last April. The leaves on the trees are as green as in April, and the palms and magnolias I especially admire. Everything seems to grow with such ease and perfection. I am often thinking of the Horticultural Society and will with your approval write a paper to read at one of the winter meetings on "Flowers in California." There are no Horticultural Societies here, and I may add no need of the spray pump, for there are very few bad insects or fungoid diseases.

Bakersfield, Cal.

N. KEEP.

Spraying.

SIR,—This year, in spraying, I used 2½ lbs. blue vitriol, 3 lbs. of lime and 4 oz. of Paris green to 40 gallons of water, instead of full strength as heretofore. I sprayed three times after the blossoms dropped, at intervals of ten days. The foliage of the Japan plums and sour cherries nearly all dropped off. The aphid was very bad on those trees this year, was it the spraying or the aphid that caused it? Apple, pear and European plums were all right and bore heavily.

Yours truly, A. W. GRAHAM.

Thujopsis dolabrata.

SIR,—Has any of the readers of your valuable journal had any experience as to the hardness of Thujopsis dolabrata argentea variegata of Japan? I have a good specimen, but I am afraid to risk it out during the winter. I know of but one plant, at the late Senator Sanford's residence in Hamilton. It was grown in a pot like my own, and I was told by the gardener there that the plant was sent to Senator Sanford by Princess Louise. The above is a beautiful plant if found to be hardy. Will someone please report upon it.

R. CAMERON.

Fruit Export and Imports.

DEAR SIR,—I beg to send you the enclosed which I think may be useful to publish, when we expend nearly \$4,000,000 on other peoples' fruit, and we have no corresponding value in exports.

G. H. FAWCET,

Customs Department, Ottawa.

Exported during the year ending 30th June, 1901.

Apples, dried, lbs.....	\$4,325,854	\$ 191,193
" green, bbls.....	678.651	1,482,927
Berries.....		112,441
Canned and preserved.....		181,438
All others.....		39,144

\$2,007,143

Statement showing the kind, quantity and value of fruit imported into Canada and exports therefrom during the year June 30th, 1901.

	Quantity.	Value.
Cocoa Nuts, No.....	2,257,806	\$ 40,569
Dried Apples, lbs.....	97,930	7,158
" Currants, ".....	3,121,722	219,072
" Dates, ".....	1,634,190	30,285
" Figs, ".....	2,705,430	90,094
" Prunes, ".....	4,616,342	149,091
" Raisins, ".....	13,131,663	753,798
" other, ".....	1,997,457	117,850
Nuts, Almonds ".....	699,291	120,545
" Brazil, ".....	57,441	5,399
" Pecan, ".....	512,053	30,392
" Walnuts, ".....	1,030,813	88,054
" other, ".....	4,343,458	67,413
Green fruits—		
Apples, bbls.....	26,357	74,922
Blackberries, goose,		
raspberries, etc.,		
lbs.....	1,079,652	80,366
Cherries, lbs.....	105,607	9,547
Cranberries, bush....	13,570	26,199
Currants, lbs.....	915	49
Grapes, ".....	1,001,536	59,915
Oranges and Lemons,		
boxes.....	532,112	919,809
Oranges and Lemons,		
½ boxes.....	40,839	52,127
Oranges and Lemons,		
other packages....		126,486
Oranges and Lemons,		
bulk, No.....	16,476	121
Oranges and Lemons,		
barrels.....	18,066	45,820
Peaches, lbs.....	2,094,557	52,043
Plums, bush.....	36,712	36,465
Quinces, ".....	1,383	335
Bananas, bunch.....	581,624	579,479

Pineapples, No.....	925,288	86,066
Guavas, Mangoes,		
Shaddocks, Pome-		
granates, etc.....		3,049
Wild Raspberries,		
berries.....		701
Other dutiable.....		61,593
		\$3,936,712

Our Fruit at Glasgow.

SIR,—Our fruit of last year, now over 12 months old, is still in capital condition. I have not seen any new Canadian apples to surpass them, although I have attended several of the sales at the Bazar and at Simonds & Jacobs where several thousand barrels were disposed of.

I was pleased to see that nice apples brought good prices, up to twenty-eight shillings per barrel. From that down to thirteen shillings, were common prices. Sad to say many badly packed lots were sold at much lower prices. Several lots too, seemed to have heated on the voyage and were badly spotted, so that it is not to be wondered at that they sold at low prices.

I saw some lots that had crossed in cold storage and some that had crossed in well ventilated compartments, and must say that there was but little if any, choice between the two. I rather prefer those from the ventilated compartments. I believe it would be advisable to place registering thermometers in all ship's compartments in which fruit is shipped, whether in cold storage or merely ventilated compartments; we would by that means have the satisfaction of knowing what the temperature was during the passage.

The reason of my preference for the simply ventilated compartment is that apples out of cold storage become so wet immediately on being exposed for sale that they have a bad appearance, they do not look as well as we could wish and consequently do not sell as well. Another reason is, that they sometimes lie exposed on the wharf a day or two after being discharged and during that time they become exceedingly wet, and if they go into cold storage in that condition their last state is worse than the first.

Apples that are to be kept a long time would be better of being shipped in cold storage and immediately transferred to the cold storage on being discharged from the ship, there to remain until the date of sale. But, apples that are to be sold on arrival, would, I am convinced, sell better from mere ventilated compartments.

All our apples for exhibition were packed and shipped in cases with the exception of five barrels. Many of the cases reached us in an almost perfect condition, some of them without a single damaged specimen, and we have to-day, October 13th, many kinds that are as firm and as fine in texture and flavor as they were in May and June, or as when they were gathered.

There is nothing in connection with this exhibit, that more astonishes visitors than the beauty and quality of these year old apples. We sample them freely on suitable occasions.

Shall I say that many apples come to us in very bad condition, one lot of very fine fruit had evidently been packed in barrels at first, and were afterwards transferred to the cases, wrapped in

one fold of tissue paper, without any other packing between them or between the layers; needless to say that those splendid apples were almost a total loss, whilst those that were wrapped in double tissue paper, the inner fold waxed, and packed in excelsior or placed in separate compartments, came as nearly perfect as we could hope for, and might have sold from May till August for from four to five dollars a case.

Some of the varieties still on the table in good condition are the following, viz:

Blenheim Orange, Ben Davis, Fallawater, King, Ben Davis, Black Detriot, Canada Red Baldwin, Bottle Greening, Greening R. I., Cranberry Pippin, Eccles from New Brunswick, Spitz, Lawver, Seeks, Holland pippin, Gold, Russet, Rox Russet, Wealthy, Winter St. Lawrence, Stark, Spy, La Salle American pippin a splendid keeper and sort, Malinda (new Russian, a fine keeper), Ribston pippin Bethel, Pewaukee, Swaar, St. Antoine, Andrew's Seedling (a fine keeper), L. W. Seedling (a fine keeper), Grimes Golden, Coopers Market (a splendid keeper), Nonpareil, Newton pippin, besides about half a dozen sorts that came from Nova Scotia without name that are unknown to me.

Yours truly,

ROBT. HAMILTON.

Canadian Section, Glasgow
International Exhibition, 1901.

OUR AFFILIATED SOCIETIES.

THE DESERONTO HORTICULTURAL SOCIETY held their 5th annual flower show in Union Hall, on Wednesday, Oct. 2nd, and it was a decided success. The Citizen's Band provided music, and an ice cream stand under the able management of the charming president contributed largely to the enjoyment of the evening. The fine bank of ferns which faced the main entrance was much admired, and the collection of palms to the left contained some splendid specimens of rare and beautiful plants. The two collections of greenhouse plants were worthy of careful study, and they received it. The arrangement of the plants in both collections showed that the gardeners were skillful and artistic florists. In the amateur classes the exhibits were good, but the number of entries were not as great as they should have been. The large display of cut bloom was somewhat of a surprise on account of the lateness of the season, and the bouquets were much admired. The design of cut blooms exhibited by P. Casburn, was the finest ever shown in Deseronto, and J. T. Riddle's bouquet of garden flowers extremely artistic. It is questionable if a finer show of vegetables has been seen in Canada this fall—there may have been larger collections but the quality of the exhibits could not be surpassed. In the Public and Highschool competition Miss Gwendoline Lloyd carried off the first vice-president's prize. The display of fruit was not large, owing to the lateness of the season, but what was shown was highly creditable to the exhibitors. Those in charge of the exhibition are deserving of all praise for the perfection of the arrangements, and for giving so much pleasure to the large number of citizens who visited the flower show of 1901.

LITERARY NOTE.

The building of a grain elevator in the face of difficulties that would baffle nine men out of ten, and the falling in love of the builder, and you have the plot of *Calumet "K,"* by Mervin-Webster. But you also have much more. You have a practical illustration of the point made by the writer of *A Message to Garcia*—that success waits the man who sees that his employer's interest is his own—the man for whom difficulties are an incentive, and not the cause of foolish questions or excuses for non-performance.

The Best Christmas Gift For a Little Money:

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195 Columbus Avenue, BOSTON, MASS.

A Handkerchief Worth \$1200.

Among some superb photographs of "The Hand-somest Laces in America," which occupy a double page in the Ladies' Home Journal for September, is shown an exquisite handkerchief valued at \$1200. When one closely examines the weblike film, and the remarkable detail of the dainty design, this sum seems none too much to pay for such a piece of work. Its making doubtless occupied the greater part of one woman's life. The handkerchief is now the property of the Drexel Institute in Philadelphia, to which it was presented by the widow of George W. Childs, the famous journalist and philanthropist. The other beautiful laces shown on this page are owned in New York and Boston, most of them being included in the collection loaned to the Metropolitan Museum of Art by Mrs. Astor. This collection is valued at the enormous sum of \$62,000.

Never Forget the Note of Thanks.

Be sure to send a note of thanks for a gift received at the earliest possible moment. Write it before your ardor cools. Make it hearty, spontaneous, enthusiastic. You need not be insincere. Even if you do not like the gift you must like the spirit that prompted it. Never defer writing with the idea that you will thank the giver in person. You may do that as well when opportunity offers, but do not risk delay. Nothing is more discourteous than belated thanks.—The Ladies' Home Journal for December.

PLANT DISTRIBUTION FOR 1902.

Free to subscribers to Canadian Horticulturist.

We are now offering special inducements to new subscribers for 1902, giving them the Journal from date of subscription until Jan. 1st, 1903, and their choice between our new introductions A, and B, described below. Send in both old and new names for 1902 as soon as possible, before the stock of plants is exhausted.

A. Fruit Plant, "ICEBERG" The New White Blackberry, the Paradox of the Fruit World. Two Plants.



THE following is Mr. Burbank's own description, and its accuracy will be vouched for by all who know him, as he is commendably conservative in all that he says about his creations. In his desire to mislead no one, he leans rather toward under-rating than exaggerating the value of his originations. He says: "Owing to the somewhat unsatisfactory qualities of White Blackberries so far known, the impression may have been entertained by some that no White Blackberry *could be as productive and hardy, with berries as early, abundant, large, handsome and delicious, as the best black ones.*"

"The well-known Lawton is when ripened, unsurpassed, and very generally known as the most productive market berry. Owing to its fixity of race, it will reproduce itself from seed almost exactly, and its seedlings will not be influenced, when raised from seed pollinated by other varieties, but it steadily imparts its good qualities when employed as the staminate parent. One of the great grandparents of 'Iceberg' was Lawton. The first generation of seedlings when crossed with Crystal White, was all black; the second also, though varying much in other respects; but the third produced this wonderful plant bearing the snowiest white berries ever seen."

"Very little attention was paid to the long rows of cross-bred descendants, until one day this berry was discovered, among its black relatives, with the canes bending in various directions with their load of delicious, snowy berries, which are not only white, but so transparent that the seeds, which are

unusually small, may be seen in the berries when ripe.

"Clusters, larger than those of Lawton; berries, as near as could be judged, were at least as large, earlier, sweeter, and more tender and melting throughout, though as firm as Lawton is when ripe."

B. Flower, Deutzia Lemoinei, (shrub.)

The introducers describe it as follows:-

Flowers pure white. In comparison with other Deutzias it is ahead of them all, in that it blooms more abundantly and earlier. Its trusses are larger, double and not single. Can be readily forced with ordinary care in the house in the wintertime to bloom about Easter, thus producing excellent flowers when such a color is in greatest demand. This plant cannot fail to give satisfaction for both indoor and outdoor use. It is dwarf in growth, being about 12 to 14 inches high when delivered, having several branches. It is being introduced by nurserymen at 75 cents each plant.

A WORD TO OUR SUBSCRIBERS.—We submit the list much earlier than usual because we want to get all our renewal orders for 1902 in before the end of 1901. We want to make the year (1902) a **record breaker** for the membership of our Association, so we are offering each subscriber a choice between these two beautiful plants, both of which are **new and valuable.**

Any person sending in two names and two dollars, may have an extra plant in place of commission and thus have for himself both the Deutzia and the blackberry "Iceberg."

New Subscribers sending in one dollar for the year 1902, may have the balance of the year 1901 free, in addition to choice of plants.

No plants can be promised to those who do not make selection when paying the subscription.

Remember the old proverb, "First come first served," so the sooner you send in your subscription and select your plant, the more sure you are that the stock will not be exhausted.

Horticultural Societies or Agents are allowed to select an extra plant in place of the commission allowed for each subscriber, in which case, of course the whole \$1.00 must be remitted us for each person on the list. In this way a society could, if desired, secure two different plants from our list for each of its members, the value of which at retail would nearly equal the whole membership fee.

PLEASE NOTICE that the descriptions above are by the introducers. We expect our readers to test them and report whether these novelties are as described.





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vol. 23-24 (1900-1901)

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